The **future** of **electronic entertainment** issue#88

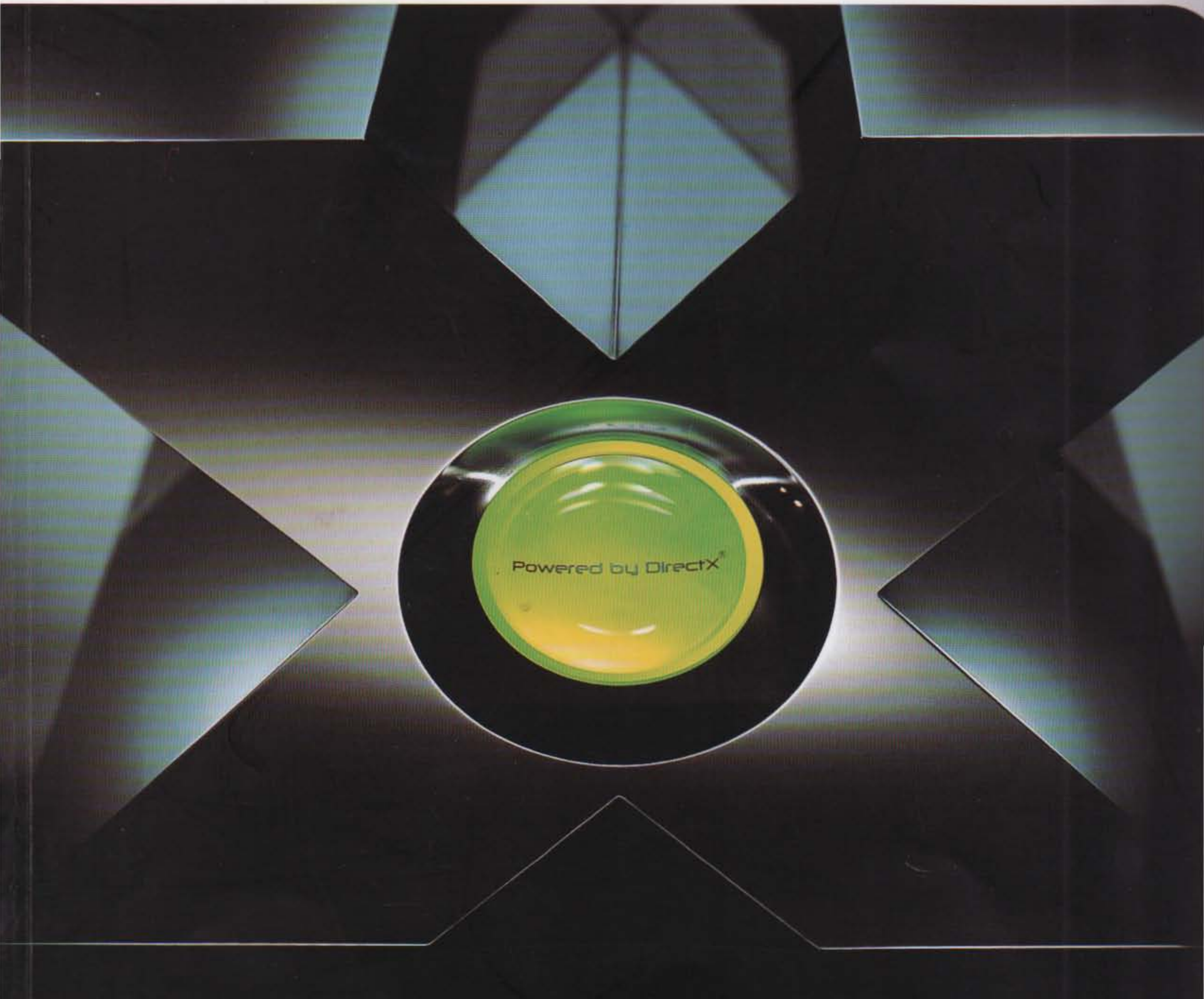
EDGE®

PlayStation | PS2 | N64 | Dreamcast | PC | X-Box | Dolphin

Inside: the trouble with PlayStation2 – developers tell all

Attenuation maps? Ha interfaces? Videogami new language explaine

Plus: Time Splitters, Jet Set Radio, Lotus Team Challenge, Elit



X-Box: from dream to reality

How Microsoft created its PlayStation2 killer



enter

The future of electronic entertainment



Issue one, October 1993

How well do you remember October 1993, when a new videogame magazine called **Edge** first hit the newsstands? It was an unusual piece of work, infamously aimed not at everyone but at a select audience who understood just how wondrous a pursuit e-entertainment was, a bunch of different individuals who, in the years since, have seen their interests jumped upon, rebranded and repackaged, and sold off down the river to the masses.

You've seen brave new formats arrive and pass without even politely offering up any memories that might stay with you in the same way your first sight of *Doom* or *Super Mario 64* forever will (look, we're genuinely sorry for encouraging anyone to buy into either 3DO or Jaguar). You've seen the multimedia revolution promised and royally messed up, only to now witness Sony attempt to resurrect it with the advent of PlayStation2. You've watched, helplessly, as Sega has turned from e-entertainment's 'coolest' brand into something the general public seems to be doing its best to ignore. Hell, you've even seen *Rise Of The Robots* on the cover of **Edge**. This truly is an odd business.

And it is a business of change. Next year, a winner will be found in the race for console graphical supremacy, giving designers, artists and technicians the opportunity to stop, look around, and think not about how many polygons there are onscreen, but why they exist there at all.

Crucially, e-entertainment will soon be as much about what happens outside of the box as well as inside it. Within three years, Sony, currently the industry's most serious player, will be throwing movies and music down a pipe into your living room via your PlayStation2. And the company's network proposal represents a paradigm shift in the gaming process. Multiplayer *Chu-Chu Rocket* via a 33.6K modem? Yes, that's quite enough of that, thank you very much.

As Sony puts its delivery framework in place, Microsoft will be splashing out half a billion dollars like a high roller in Vegas in an effort to carve a canyon-wide niche for itself. Just one year ago, who could have foreseen the creator of some of the world's most reviled software being now poised to offer a dynamic, genuinely viable platform in the videogaming hardware market?

In recognition of all this change, **Edge** has got there first by reinventing itself. However, the magazine you hold in your hands is but a stepping stone. **Edge Online**, launching in September, will allow you to consume **Edge**'s unique brand of journalism via a different portal. Reader interaction will be encouraged, and by being a part of it you will find yourself in a position to get closer to videogames, even communicating directly with the people responsible for making the pastime the phenomenon it is.

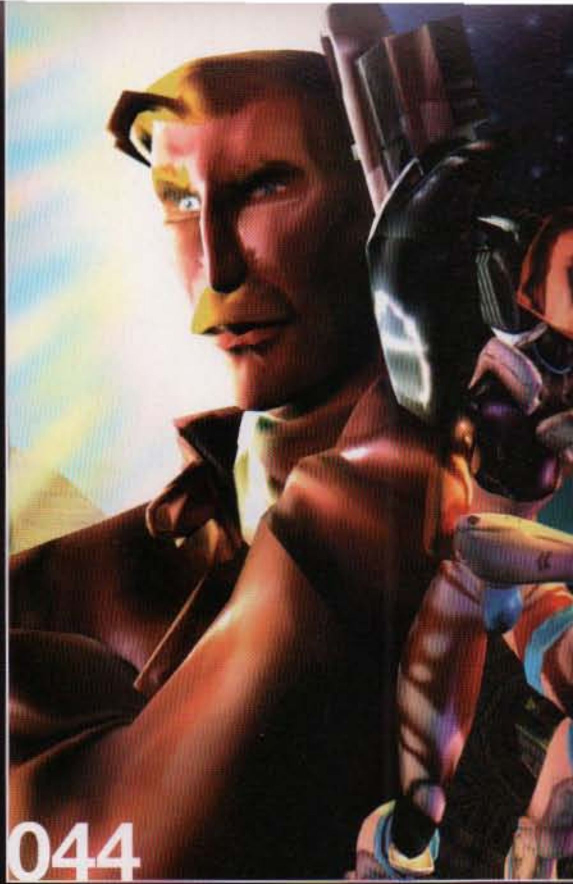
Pardon the reference, but to paraphrase an old line, the future of electronic entertainment is almost here...



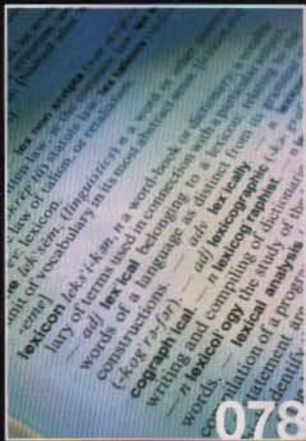
Issue 88, September 2000

Features

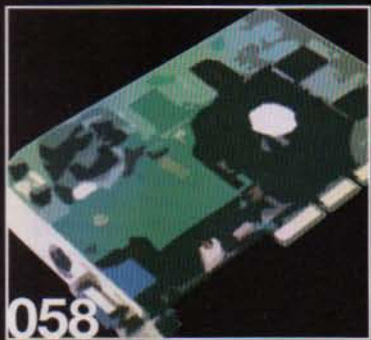












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News and views from e-entertainment's cutting edge





The trouble with PlayStation2

Disgruntled developers express concerns over record-breaking console

With the most successful console launch ever in Japan under its belt and anticipation growing among gamers in Europe and the US eager to get their hands on Sony's next-generation console, Sony could be forgiven for thinking that it has the next-generation console war sewn up. Criticisms regarding PS2's graphical nuances have done little to hamper sales of the unit – it has now clocked up three million sales in its home territory – but genuine concerns are beginning to surface. Hardware sales remain strong, but software sales are sluggish, and there is confusion surrounding the European distribution of the platform.

Anyone wandering the streets of Akihabara right now will witness the symptoms of a general malaise affecting the Japanese videogame industry in the form of boarded-up shopfronts, but the strong impact that Sony's console has had on DVD sales – which have tripled since it launched – would appear to indicate that a slowdown in PlayStation2 software sales is a more localised problem. The volume of game software sold is now lower than the that of the console units themselves, and a killer title can expect to sell in the region of just 600,000 copies, a relatively meagre number, and one that will not provide satisfactory returns for its publisher. By way of example, *Final Fantasy IX* will have to sell 1.6m copies to break even, and for the first time ever Square has taken the decision not to attend the Tokyo Game Show 2000 this autumn. More alarmingly for Sony is talk of a significant number of developers which, concerned by Sony's multimedia diversification and low software sales, are turning their attention towards Nintendo's Dolphin.

The volume of game software sold is now lower than that of the console unit itself

Difficulties at retail?

In Europe and the US, Sony's launch plans are proceeding apace, though not very smoothly. Electronics Boutique is refusing to guarantee that consumers who ordered their unit after July 9 in the US will receive it at launch. In the UK, retailers were initially concerned by Sony's planned preorder-based allocation procedure. While Sony has caved in to pressure and declared that there will be inventory made available for shop shelves, its decision to take orders directly online may still cause unease among independent retailers.

Then there are the well-voiced difficulties concerning programmers and their struggles to get the best out of the system's distinctive architecture. Although antialiasing as an issue is perhaps better ascribed to the pressing need for new content that Internet editors find themselves under, developers are voicing more substantial anxieties. A leading developer, who declined to be named, points to bandwidth issues, for example, which inhibit the polygon-pushing power of the console: "If you're doing real textured polygon triangles with a bit of extra stuff, then we're talking somewhere between ten to 15 million triangles; 12 million is the figure we tend to use as a rule of thumb. The GS

New PS2 kit arrives

Realtime digital content creator unveiled at New Orleans show

Sony unveiled its new GScube development system in New Orleans at the SIGGRAPH 2000 International Conference on Computer Graphics and Interactive Techniques, which ran from July 23-28. Essentially, the development system consists of an enhanced PlayStation2 that boasts 16 sets of graphics units featuring an updated Graphics Synthesizer with an embedded frame buffer memory of 32Mb (eight times that of the standard PlayStation2). The system is designed to enable realtime digital content creation for ecinema and other applications. Sony showed several technology demos with partners, including Criterion Software, which demonstrated its *RenderWare3* interactive 3D graphics middleware.







Since launch, the release rate of new PS2 titles in Japan has reduced to a trickle, with scant few titles even worthy of consideration. *Metal Gear Solid 2* continues to offer the clearest indication of what the platform is capable of, but of course it will not be ready for PAL launch









[Graphics Synthesiser] is capable of doing just about anything you can throw at it – there's virtually never a bandwidth problem; the problem is pushing the triangles to the GS, so it's really a question of the DMA bus bandwidth and then what you decide to do with the VU1. As soon as you do that then you start hitting other bandwidth issues, so it's a real balancing issue and it's actually quite a complex problem, to choose exactly what you're going to do with all your triangles."

"Having five processors is not that uncommon – it's been that way since the Amiga days – but they're much more complex, and understanding how to use them well is the challenge"

The sheer size and complexity of both the system architecture and games designed for a 128bit environment can also present developers with obstacles. "Having five processors on one machine is not that uncommon," continues **Edge**'s source, "it's been that way since the Amiga days, but they're much more complex processors than they used to be, and understanding how to use them well is the challenge."

Scaling the coding curve

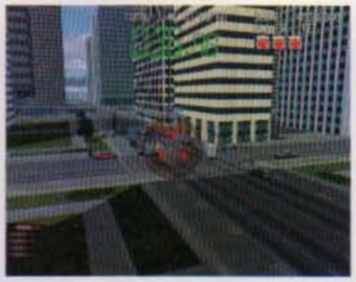
But in the context of poor software sales, developers need to scale steep learning curves with little room for error. In particular, the management of the vector units requires a lot of learning, and not just from developers who aren't used to working so close to the metal.

"There's a sort of flywheel effect with VU1," reveals **Edge**'s source, "in that setting the damn thing up to go fast is costly, keeping it going very fast is pretty easy, but then you use a lot when you're running down. So making sure that your data's set up to have the key structure so that you can get very high performance is very important. And learning how to do that is not something we got on to with our first project." For this reason it will take time before the more sophisticated capabilities of PS2 are convincingly implemented. "Second-generation titles will use a variety of procedural techniques," believes **Edge**'s source, "and you'll just see games which are much, much richer visually, and you wouldn't get that richness unless you use these techniques. You'll see some of these used on our first-generation games, and more on our second generation of titles."

There is a danger that this complexity will drive developers towards an over-reliance on middleware, which can also have disadvantages. "When you're building a generic engine," says **Edge**'s source, "like *Renderware* for example, then you are imposing a certain style of solution on people, and however programmable and however much you can change it and however flexible it is, you're still imposing a structure and suggesting a solution. If you get bound by that you won't reach the absolute optimal peak for a particular game genre. You'll get competent titles, and probably, for this generation, you'll get a competitive title, but I don't think you'll learn enough from for the next generation. When you're designing a game from the bones outwards you can decide the exact optimal thing; we'll use VU0 for this bit of the graphics, and when we're not using it we'll use it for something else, so we can make use of the chip perfectly for a particular task. You're just losing all that flexibility."

Ironically, then, it would appear that the sheer intricacy of the PS2 system architecture has resulted in developers failing to utilise the console's unique potential, which in turn has contributed to a moribund software market in Japan. Despite the apparent glory of *Metal Gear Solid 2*, Sony's new machine clearly still has a long way to go before it delivers what was once promised.













With more than 50 titles slated for release at launch, there is currently little information regarding which titles will actually be available on October 26, though western gamers can rest assured that there won't be a proliferation of Mah Jong titles. Likely candidates so far include *Ridge Racer V*, *Tekken Tag Tournament* (which will feature a one-on-one mode), *Theme Park World*, *Oni*, *FIFA 2001 MLS*, *Madden NFL 2001*, *Super Snowboarding X*, *F1 Racing Championship*, *Wetrix 2*, plus (above, from left) *ESPN International Track & Field*, *ISS Soccer*, *ESPN X Games Snowboarding*, *Formula 1 2000*, (right group, clockwise from top left) *Gradius III & IV*, *Silent Scope*, *Fantavision* (which will be released with a twoplayer mode), *Smuggler's Run*, *Midnight Club*, and *Time Splitters*, with the latter showing the most promise of all titles **(see p44)**

industryopinion

Edge canvassed a number of devcos on PS2 coding

"Our experience, as well as that of all the developers that we've talked with, is that it is a difficult system to program for. You are basically building from scratch to a complicated arrangement of chipsets. You wind up spending a lot of time and money in areas that you expected to be available in basic hardware functionality and dev system tools.

"I don't think it's any surprise that software sales have slowed down after the Japanese launch. Just look at the titles that have been released. They were far from impressive relative to public expectations of the system. Powerful hardware means nothing in the absence of great software."

Lorne Lanning, Oddworld Inhabitants

"I think a lot of developers have had problems because they tried to port over their PC engines and found that you need to do things in a fundamentally different way on the PS2. Sure, it's difficult to program for, but if that bothers you, you're in the wrong job. You should be programming for a bank. Or maybe Web sites.

"I've really enjoyed programming for PS2. Having started with absolutely no tools or engine code, we've been able to make every decision based on what would be best for a PS2 game, and I think the results speak for themselves.

"Given the complexity of the hardware, it will take time before people produce games that do the system justice."

Steve Ellis, Free Radical Design

"So far everything has appeared to be quite good, and, considering the negative rumours we had heard before we got one, we have been reasonably impressed with it. However, we have only just started with it, so I wouldn't want to get too optimistic yet.

"The PS2 will be successful and I wouldn't read too much into the current sales figures in Japan."

Matthew Gabriel, Brain In A Jar

"The PS2 is going back to the older days of programming games, where the developer is really going to have to understand the hardware and the tricks needed to get the very best out of it. That's not going to happen too quickly. So, apart from the Sony-developed games, which will have a headstart on everything else, it will be the second- and even third-generation products that will really show off the power of the system. And in the meantime the PC and the X-Box are making rapid advances in power. The new graphics cards and the new processors for next year will enable the PC to do so much more than the PS2. Even now the PS2 has a tough job competing with the graphic quality of PC titles."

Chris West, West Racing

"I'd like to set the record straight about the whole antialiasing issue. People have made such a big deal about it, and now some developers are seizing the opportunity to make themselves look clever by telling blatant lies.

"Antialiasing is a technique used to make polygon edges look smoother. The PlayStation2 does support hardware antialiasing. However, it is unlikely to be used in most games because every polygon in a scene needs to be distance sorted. Distance sorting was a necessity on the original PlayStation because there was no Z-buffer, but with the high poly counts handled by the PlayStation2 it isn't feasible for most games.

"There has been a lot of talk recently about certain developers having found a near-zero cost solution to the 'antialiasing bug', or of Sony having provided examples to developers. The technique that is being used is fundamentally different to antialiasing – it is a full-screen blur. Yes, it's fast, but the result is a blurry game with still clearly visible aliasing.

"The fact is, aliasing is something that people will have to get used to in PS2 games, just like the lack of perspective correction on the PlayStation or the blurriness and poor texture quality on the N64. I don't see it as a big issue."

Name withheld

"There's a whole range of new concepts that come with PS2 that weren't in PS1, so if you've been a straightforward PS1 developer, you've been working with the traditional console – a very simple-type device that does what it does well, but doesn't do anything very complicated. PS2 is another order of magnitude more complex.

"I think that it's all well and good for Phil [Harrison] to talk about lots of things that the machine is going to be good at doing, and everyone is going to be looking at these areas. I think a lot of developers, or at least us – maybe we're an exception, I don't know – are just trying to understand delivery of games on PlayStation2. You know, we have real deadlines, real budgets, and there are a lot of production issues outside

> "I think a lot of developers are just trying to understand delivery of games on PS2. We have real deadlines, real budgets, and there are production issues outside of the box"

of just the technology of the box that are new for companies like us to have to understand and deal with. I mean we've had, for example, problems where our authoring packages just can't deal with the sheer number of polygons that we're going to be able to author the models with, and that's a real issue for us. There are solutions that procedural rendering techniques will actually help with, but at the same time we have to deal with the short-term, we have to understand how to make games on this platform and get it right, and deliver a bloody good game to start off with, before we're going to be able to go on and do more in the future.

"People talk about antialiasing and they talk about two different techniques: there's a hardware solution to antialiasing and there's a software solution. We're using the latter – the former is built into the chip, but in order to use it you have to run with full-height frame buffers, which knocks a huge chunk out of your texture memory, so it's all a matter of compromise."

Name withheld

Microsoft maintains X-Box momentum

Software giant restructures Euro ops in preparation to enter next-generation console market



Following management restructuring at Microsoft, the names of the figures responsible for the fortunes of X-Box in Europe and the UK have emerged. More pre-alpha dev kits have also shipped.

Sandy Duncan will head the European operations, with Julie Armitage in charge of marketing the platform. Paul Fox is head of European PR, and will work with Thierry Chabrol in France and Hans Stettmeier in Germany. In the UK, the Games/X-Box unit will be part of the Home & Retail division, headed by Chris Lewis. Stephen McGill will report to **Richard Teversham**, who is the group marketing manager for games and X-Box. Games channel manager Sara-Jane Bartlett, thirdparty manager Anton Colton, and Kate Pichon, who is responsible for Channel Communications, will be joined by another two marketing managers and a PR manager, yet to be named.

The reshuffle reflects a significant degree of European autonomy in terms of the marketing and distribution of the console, allowing such seemingly minor issues as RF cables for the UK to be addressed, and Teversham draws attention to the distinct marketing challenge presented by the target audience of 16-24-year-old gamers in the UK: "I think we've got quite a cynical-to-marketing audience in the UK, and we need to... bring people into the UK organisation who know the hotspots for these people." While Teversham is right to point out the difficulties of reaching such an audience, he also highlights the advantages of such a strategy: "It's probably the most difficult audience to get to, but if we target it in an intelligent way – and that may not mean tons of ads, there's no formula to get to that audience – then people who are younger will aspire, and old farts like me, who would still like in some ways to be that age, will aspire downwards. Sony have cult appeal but they're still massmarket, and that is the winning formula to me."

Teversham is adamant that Microsoft should look to its predecessors and learn from their mistakes. "We're taking nothing for granted," he stresses, "and I think we need to listen and learn from what's gone on. My philosophy is that if we can build on what the other people have done in terms of marketing, etc, and add the Microsoft touch, then we'll be in a good position." Although he is keen to distance himself from criticism of his competitors, he argues that Sega concentrated on marketing its hardware at the expense of games, and failed to









These shots come from *Tau*, the latest X-Box technology demo, from Kuju Entertainment (see p52). Using a punchy base PC with a GeForce2 graphics card, it still gives no clearer indication of the final box's power, but it remains a sexy slice of code, especially with its water effects



A key early standout feature among X-Box software should be showstopping lighting effects, and *Tau* features a raft of them



generate word-of-mouth excitement for Dreamcast, as it had done with its Mega Drive. Microsoft, on the other hand, is firmly committed to pushing its software. Likening the platform to a hi-fi separate, as opposed to Sony's all-in-one unit, Teversham adds that in order to target an audience preoccupied with gameplay, Microsoft will have to focus on content. "Microsoft is a brand name that doesn't energise our target audience in Europe, especially in the UK," he reasons. "X-Box is going to be the brand, but ultimately we will be promoting the games to promote the platform."

Teversham would like to see a simultaneous US/UK debut, prior to the Japanese launch

The development key

Of course, the key to producing quality content is to ensure a strong relationship with developers. "We're in a position at the moment where the excitement of developers is really riding a wave, and really creating a buzz," enthuses Teversham, "and when people like Funcom in Ireland come out and say 'We want to develop for X-Box and not for PS2', it's adding to the whole momentum." Microsoft's track record in assisting developers will also stand it in good stead, with the recent Meltdown event in the US assisting developers to adapt to DirectX8. "We're there to aid the developers to help them get out the best games, because we want the best games on this platform, especially at launch," Teversham elaborates.

Microsoft's considered approach to the acquisition market is another pointer to the company's vision of the successful launch of the machine. "The key win for us – and it's quite simple – is if we have the developers on board who are firmly behind the platform. What we can give the developers is a lot more detail onscreen, better graphics and better sound. We've got the hard disk that gives them the clay to do what they want, and there's also the evolving games concept. We recently bought a company in the US for up-to-date, downloadable information [NetGames USA]. I think what Microsoft is doing very sensibly at the moment is we are partnering very, very good people like Konami, but we're buying people like Bungie, and I think we're making sensible acquisitions, rather than just rushing in and buying a whole stable. That makes me feel good, because I think we're getting the expertise of the people who are coming in who are lean and hungry, and really want to make their mark."

It's unsurprising that Teversham is bullish about the market opportunity for X-Box, arguing there's room for all four platforms, if not five: "What it's doing, I think, is bringing even more focus onto the games arena, and hopefully that will bring even more people into the market, more interest, and it's going to be a very, very exciting time." With the design of X-Box now finalised (and looking 'extremely nice', apparently), he would like to see a simultaneous debut in the US and UK, prior to the Japanese launch: "It would be great because it would break the mould and make our audience feel special."

Summing up, Teversham says: "It will be the developers, it will be the games, and it will be that we will have looked at what the other guys have done. We will have a machine that is three times as good as PS2, and we could call it a compliment that Sony thought the hard disk is a good idea."

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Developers share their thoughts on X-Box

"Right now, we're using high-end PCs with GeForce2 cards running under DirectX8 to give us the closest stable development environment that we think approaches the X-Box in performance. Eventually we will use GeForce3 cards. Obviously, PC development tools are of a maturity that far exceed any other platform, and so this set-up has allowed us a tremendous amount of creative freedom to expand ideas and execution, both in terms of art and design, and, as you've already seen, the sheer power of the hardware is allowing us to achieve very exciting technological results. We only expect this to get better with the advent of final hardware."
Herman Serrano, Argonaut

"When we first heard about Microsoft's plans for X-Box, we had our doubts about the system. Having lived through the Win-CE on Dreamcast experience we thought it would basically be a PC in a console box. As we started working with Microsoft and learning more about their plans, we have become increasingly impressed by their understanding of what it will take to compete with Sony/Nintendo and what developers need technically from a next-gen console. The X-Box has all the advantages of a PC heritage (DirectX8, standard components, etc) but none of the downsides of the PC (like an ill-defined platform, resource-hogging OS, or the cost). At Climax we are very excited by the X-Box and believe that it is going to be a massive success. Consequently we are already committing significant resources to developing for the system."
Karl Jeffery, Climax

"Throughout *Halo*'s design process, we've had to face tough choices about limiting the game's scope to accommodate lower-end PC systems. Now that we're making the game for X-Box first and foremost, we haven't thrown away our old performance guidelines, but we certainly feel a lot more comfortable committing to high-poly models, more detailed textures, a litany of shader effects, insane physics – all the really sexy things that X-Box is capable of. Tackling a game as ambitious as *Halo*, it feels really good to have a clear hardware target. Even better, one that allows the whole team to create stuff that's a lot more complex than we originally planned."
Joseph Staten, Bungie

Sega spawns brave new arcade world

New wave of entertainment suites installed in key Tokyo locations as giant reinvents coin-ops







Sega's new online entertainment salons certainly look impressive. Customers are separated by glass dividers, though there are some stations which provide a sofa for more than one customer to sit down. Users will be able to pay for the services by IC Card (facing page, top right), which will also be able to store their preferences

Sega has taken the first steps towards implementing a nationwide network of entertainment suites in Japan. The company claims that the venture, entitled Entertainment STAGE net@, will revolutionise the traditional image of amusement arcades, with facilities connected by high-speed, high-capacity optic fibres, and set to offer a whole new range of content.

Rival Sony has been slow to implement its own broadband solution, despite emphasising the multimedia aspects of PlayStation2 via DVD playback and the recently announced HDD add-on – in contrast to Sega, for which net@ forms just one part of an integrated approach to network connectivity. Sega aims to bring networked solutions to three 'lifestyle spaces', consisting of the mobile phone, via a strategic alliance with Motorola, the home, via the Dreamcast browser, and now the street, via net@.

Earlier this year, Sega announced plans to introduce domestic high-speed Internet connections to Dreamcast owners through co-operation with 40 Japanese cable providers, including Titus Communications and Nagoya Cable Network. With plans to target 200 such providers, Sega has also introduced a broadband adapter for the Dreamcast that replaces the console's installed narrowband modem and is compatible with a range of broadband platforms, including CATV, optic fibres and ADSL. Another strategic alliance towards the end of an integrated solution was with Motorola, with whom Sega will develop wireless games for the J2ME platform (Java 2 Platform, Micro Edition, developed by Motorola and Sun Microsystems). The company believes that this will leave it well positioned for future developments in the wireless sector.

The first steps in the creation of the net@ network have been taken in Tokyo, with the introduction of cybercafé-style areas in three of the city's major arcades – Ikebukuro GIGO, Shibuya GIGO and Odaiba Joypolis. At each of these locations, an entire floor has been given over to stylish cubicles containing network terminals with TFT touch-screen monitors and CCD cameras. The network terminals run a form of *Windows* and contain NVidia GTS graphics chips, with a drawer



in the cubicle containing four console-style controllers, including two Dreamcast joypads and an infrared keyboard.

A major feature of the terminals is an IC card slot. Together with Schlumberger, a company with a background in smartcard solutions, Sega has come up with a card that promises to be more than just a coinless wallet. The cards, available from November this year, will verify membership and serve as a form of memory card, storing user-specific content such as high scores and addresses. Perhaps alarmingly, Sega also boasts that the cards will enable content partners to increase the efficiency of their marketing by providing information about customers, including realtime feedback regarding market trends and sales information, facilitating flexible pricing and discounting.

The principal function, though, is payment for net@ services, which are charged by the half-hour and subsequent ten-minute periods. Sega claims that the range of net@ content will far exceed the traditional remit of amusement arcades, offering 'unified interactive activities'. In order to navigate through this surfeit of information, ranging from music, videos and TV, users will be assisted by a net@pet, a concept that adds a Tamagotchi-esque element to traditional Internet browsers. Hatching from an egg, the net@pet, onscreen at all times, changes its look according to the type and variety of information that it retrieves. Interestingly each net@pet will service two customers.

Sega plays 'Blind Date'

Net@ terminals will also offer high-spec videophone facilities via the net@phone. Running at 30fps, the videophone will be able to operate concurrently with other activities, allowing – according to Sega – such delights as a nationwide dating party. Gaming seems likely to remain a focus for significant amounts of the content available in these entertainment suites, though, and there is already a net@ version of *Hundred Swords* (see p41) available, alongside a range of more accessible titles.

Kenji Sasaki of Sega Rosso (formerly AM R&D#5) is excited by the initiative, but still has reservations: "I definitely want to make titles using this feature – not adapting existing titles to net@, but making original games based on net@ in order to introduce new gameplay – new concepts in the arcade. I think that *Sega Rally* was a great title. Now, because of the introduction of net@, I don't think it will be more fun. Focusing on the network issue could result in poor content. So just including a net@ option in an existing game, or using this feature to simply make versus play possible on a large scale, is just not viable. The project concept should be network-based from the beginning in order to create a true new entertainment."

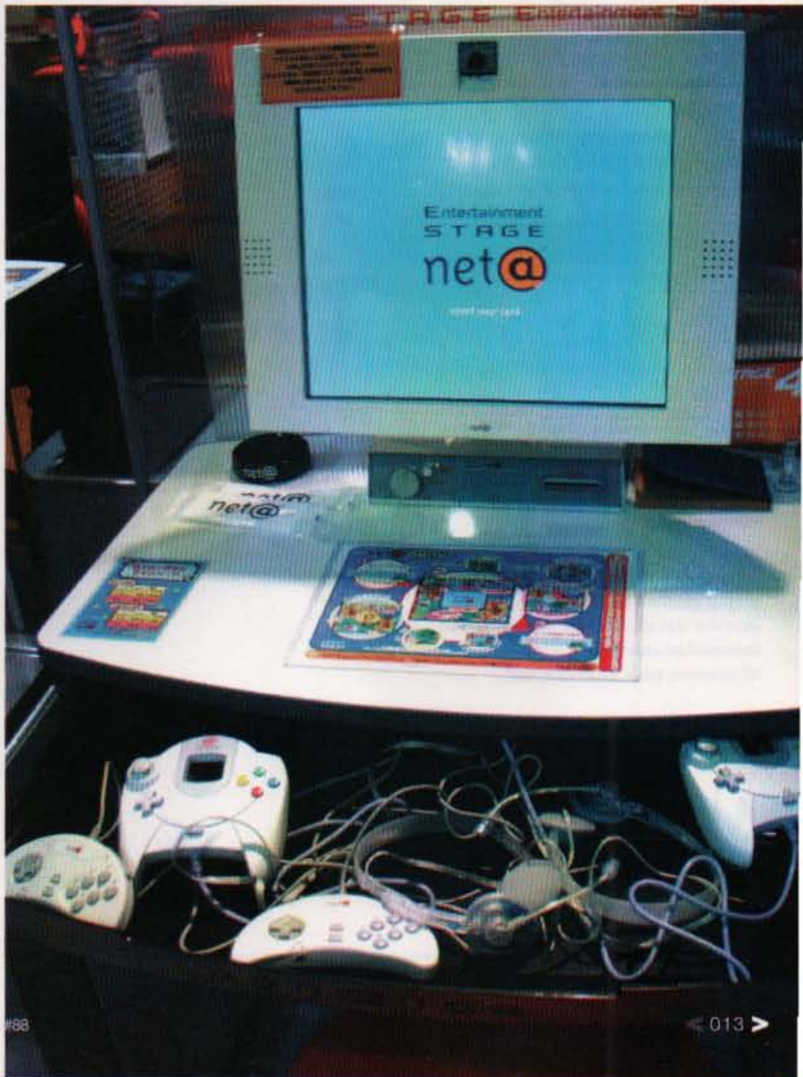
However, the first batch of visitors to the new net@ suites appear to have been less than impressed. It seems that the interface can prove to be cluttered and unintuitive, and users complained of being bored after a short time. It is likely that this is because the facilities were opened without a full range of content, but in light of Sega's previous mistakes, it is to be hoped that the company has learned its lesson about inadequate implementation of new concepts.

"I definitely want to make titles using this feature – not adapting existing titles to net@, but making original games based on net@"

Talking e-eonline

Industry big-hitters to talk at wireless gaming conference

Dream Arena director Joost Vreeswijk will join several other industry speakers, including Brendan McNamara of SCEE, and Gordon Walton of Origin Systems, at an industry conference that will explore the ramifications of online gaming. Online Gaming takes place at Le Meridien Waldorf Hotel in London from September 26-29, and will include a day devoted to discussing wireless gaming. For further information call 0207 915 5055.



Consolidation rumours grow as shares take a dive

First six months of 2000 reveal tough conditions for industry heavyweights, but key figures retain confidence in new tech

Amid news that several leading videogame publishers have reported a downturn in financial performance, speculation about possible consolidation within the industry is rife. Despite the continued optimism of analysts predicting the size of the videogame industry – worth nearly £1.8bn in the UK alone – to grow exponentially with the release of next-generation hardware, the mediocre financial results of several leading publishers, including EA, Eidos, Acclaim, Activision, THQ, and indeed Sony – which posted a 6.3 per cent drop in first-quarter sales – point very clearly to an industry in transition.

Although a deal is now looking increasingly unlikely, Eidos shares received a fillip this month from rumours that Infogrames was looking to acquire the company. This time last year, Eidos was a darling of the City, with its shares trading at nearly £13 in December, but a series of profit warnings precipitated a collapse to around £3 before the rumoured Infogrames deal. THQ shares also slumped after the company warned that sales and earnings would be less than anticipated, and in May this year Acclaim was notified by Nasdaq that it failed to meet the net tangible asset and minimum price bid requirements for listing on that market.

Whether or not a deal does occur, Infogrames has its own problems, with an operating margin that has decreased since last year, and recently acquired GT Interactive continuing to underperform. But the fact that it recently issued a convertible bond to raise £350m and announced a reverse stock split to prepare for further acquisitions suggests that it intends to continue its acquisitive approach. Acclaim's board of directors recently adopted a Shareholder Rights Plan to protect them from the possibility of an unfair takeover, which is another reflection of the fact that a greater degree of consolidation could well be in the offing. **Ian Livingstone**, executive chairman of Eidos, points out that consolidation occurs during periods of transition for a number of reasons, adding: "Some companies become vulnerable to a takeover because of shortage of working capital. Some companies decide to merge to gain critical mass and face new challenges through a combined entity." **Nick Gibson**, a financial analyst with investment bank Durlacher, goes further: "Given the changes that the advent of digital networks will bring to the games industry, this could be a catalyst for a number of new powers to emerge."

Chief among the reasons for such activity must surely be to cut costs. The extensive financial support that Eidos showed to Ion Storm may or may not have contributed to the company's profit warnings, but it does serve as an excellent example of the profligacy that has accentuated the current slump in performance. Indeed the continued fall in share price didn't prevent executive directors of Eidos sharing a £5.6m bonus package earlier this year. The increasing expense of producing and marketing games, typified by the $20m budget for *Shenmue*, is coinciding with decreased software prices and falling sales while customers anticipate the release of the new consoles. "We are going through this period of transition as consumers await the launch of new hardware platforms," states Livingstone. "Consequently there has been a global softening of consumer demand for games, and we see no reason to expect circumstances to improve materially in the very near future." Gibson argues that the consumer demographic is also undergoing transition: "At the end of a console's life, the demographic of the user tends to reach its least 'productive' (in terms of games bought per annum), with a significant proportion of the active gaming market lying in the teen, pre-teen market and casual gaming market. As a result, gamers are less discriminating about games quality and sales are more often determined according to price, licences and established games brands."

The extensive financial support that Eidos showed to Ion Storm serves as an excellent example of the profligacy that has accentuated the slump

The shock of transition

The only thing that is surprising about the current transition is that it appears to have come as a surprise to publishers. But as Livingstone points out, although the demise of 16bit was accompanied by a two-year slump, it ultimately expanded the market for videogames. "History shows that advances in

Sony posts loss

Group performance figures paint disappointing picture

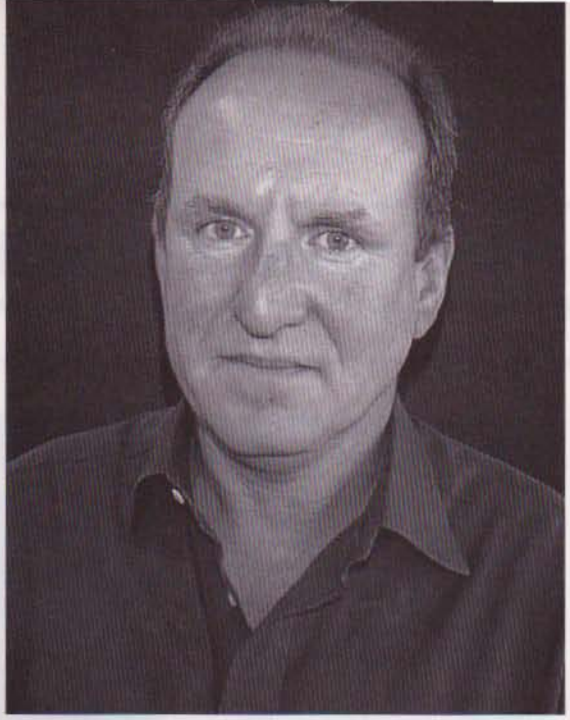
Sony's financial results for the quarter ending June 2000 have seen a net loss of ¥88.29bn (£533m). The loss is largely due to a change in accounting rules that affected the companies movie division in the US, but the games division also posted a ¥16bn (£96.6m) operating loss due to the fact that Japanese sales of Playstation2 have yet to make up for declining software sales in Europe and the US.

A downward trend in share price is almost universal across the industry over the last six months, though recent speculation concerning a bid from Infogrames gave Eidos a boost





technology always significantly increase the size of the games market," argues Livingstone. "In the end, the consumer will benefit as even more immersive and graphically intensive games appear on the shelves." But how are companies to sustain themselves until the next-generation consoles have a wide enough installed base to offset the declining sales of current platforms? "The launch of a new hardware platform gives us the opportunity to launch new titles and establish new intellectual property, while also launching sequels of our previously successful titles. I am very happy that the core gamers drive this market, as Eidos has some particularly great games in the pipeline. We expect *Time Splitters* to be out at launch of PS2 followed by a steady stream of titles for PS2,



Eidos executive chairman Ian Livingstone is optimistic that the current transition will result in an enlarged videogame market

"Publishers are becoming increasingly cautious of committing ever-increasing development funding to start-up developers"

X-Box and Dolphin. It is likely, however, that we will put more resources into our franchise titles to maintain their success."

Not every publisher or developer has the means to be so optimistic, though. Ironically, Eidos has traditionally been responsible for supporting small developers, which are likely to find the current transition hard going.

"Publishers are becoming increasingly cautious of committing ever-increasing development funding to start-up developers," states Livingstone. "It takes quite a leap of faith to pay advances in excess of £1m to these guys unless they can demonstrate their expertise and technology. They are certainly not going to get funding off the back of a 20-page design document. The risks are too great. The best they can hope for is prototype funding."

Nevertheless, the current market cycle does offer some hope, as Gibson illustrates: "The cyclical transition between videogames platforms will throw up considerable opportunities for game developers who can create sufficiently differentiated, high-quality products, as the early-stage market is more welcoming towards new brands and new ideas than the late-stage market, in which only established brands tend to survive. In addition, the advent of digital networks will create a wealth of other opportunities for companies, as this will fundamentally affect the way games are designed, developed, published, distributed, played and paid for, and there are very, very few companies that a fully prepared for this."

So, despite a general downward trend in share prices, the industry is comfortable, looking to previous cycles for reasons to be cheerful. "I am absolutely certain that the games market for next-generation platforms will be far greater than it was at the height of the 32bit market," says Livingstone. "The more realistic games appear onscreen, the more likely new consumers will be attracted to gaming. The anorak factor will simply disappear." But the revised focus of both Sega and Sony may represent a new paradigm that makes precedent redundant. There are already signs that a wide installed base of PS2 in Japan has not resulted in a wide take-up of game software, perhaps because PS2 is not simply a games console, but whether this new paradigm will expand or inhibit the market remains to be seen.

Giants pull together

Four-way content deal set to spread IP in unique arrangement

In a rare example of co-operation, Japanese company Sammy, along with Sega, Sony and Bandai, has taken ownership of Sokiac, a digital content company. Now renamed Dimps, the ownership breaks down like this: Sammy: 51%; Bandai: 13%; Sega: 10%; Sony: 10%. The new company will produce content for all three of its parent companies' platforms: PlayStation2, Dreamcast and WonderSwan.

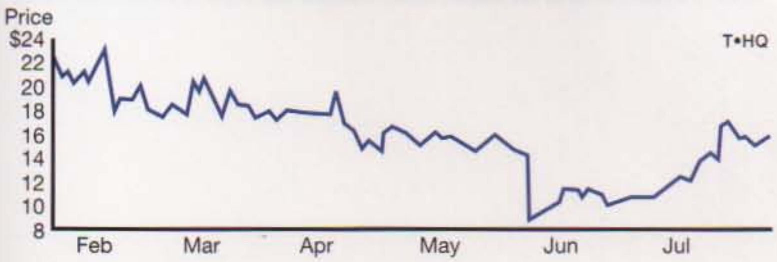
Square hits the road

RPG giant to take latest *Final Fantasy* on European tour

Square will be demonstrating *FFIX* and Play Online across Europe with its Square Millennium Tour 2000. Taking place on the following dates, the events will also feature Q&A sessions, competitions and giveaways:

September 9 – London
September 16 – Munich
September 23 – Paris
September 30 – Milan
October 7 – Madrid

A handful of tickets available for this must-see event will be offered on Future Publishing's Daily Radar UK (dailyradar.co.uk), which will also be presenting exclusive Internet coverage, with a live webcam and a selection of features and interviews.





Set-top boxes enter massively multiplayer war

NTL's introduction of broadband service opens whole new dimension to interactive television as games arrive

Viewed as a poor cousin to consoles, set-top box gaming has taken a giant step forward with NTL's unveiling of its broadband digital cable service.

Fourteen content providers have signed up, ranging from traditional developers such as Infogrames and Criterion's Fiendish Games to Internet portals and ecommerce sites such as Games Domain and Gameplay.com. But the most interesting titles hail from Cambridge's nGames. Based on a highly modified version of the *Doom* engine, *Castle Conquerors* and *Berlin Assassins* are massively multiplayer 3D action titles.

Castle Conquerors can support as many as 100 players in a two-team, sprite-based medieval melee. Control is carried out using a standard cable-TV remote control, and actions are of the forward, back, strafe left and right, and fire variety. Game modes such as Capture The Flag, King Of The Hill and Team Deathmatch will also be featured. However, due to the low technical specification of the digital set-top box (equivalent to a non-3D-accelerated P75 with 8Mb of RAM), update is currently a less-than-sparkling 10fps. One of the ironies of developing games for set-top boxes is that while the broadband connection is up to 100 times faster than a conventional phone modem, the low cost of each box means the hardware is far behind what consoles can currently offer.

To the power of 10,000

Dave Lloyd, nGame's technical director, expects *Castle Conquerors* to be popular, though. "We'll support 100 players at a time and we expect that to have around 1,000 regular players and 10,000 occasional players," he predicts. NTL plans to run the game on only one server, so when the limit is reached potential gamers will have to 'queue' until the next game starts. Each game will last between ten and 15 minutes.

At the close of play, a full set of statistics such as the number of flags captured, enemy knockouts and friendly knockouts will be recorded. "You'll be told if you are the best or worst overall," Lloyd explains. "Each game will also hand out a number of medals to players for such things as getting most knockouts or winning most flags or not being injured. These are permanently recorded on the server."

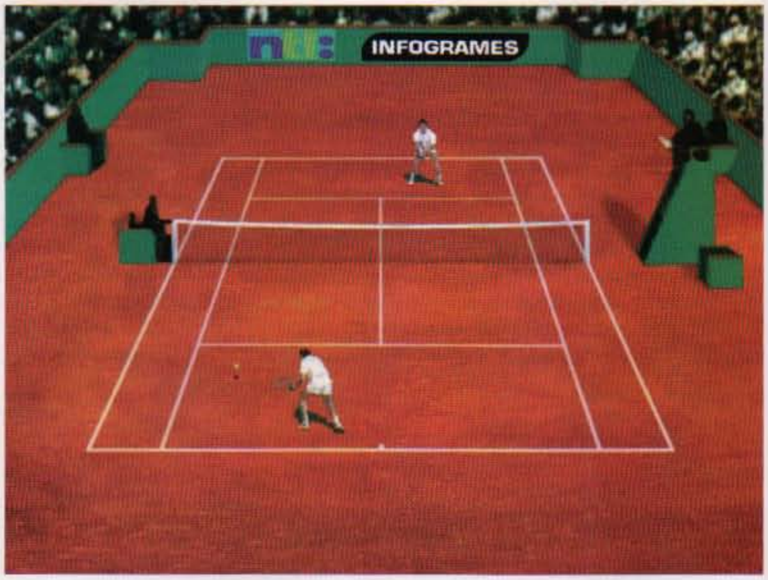




Another game using the same engine, but to a different end, is *Berlin Assassins*. A more measured and cinematic experience, this espionage game is set in a Cold War-era Germany. Up to 1,000 players and hundreds of NPCs will interact within a dozen areas of Berlin. Built around 30-minute sessions, this episodic game will require players to carry out secret missions. "For example, your mission might to be carry out an assassination, while another person will have to take a photo of your assassination," says Lloyd.

NTL's new digital package, which is currently being rolled out around the country, has 30 launch games with another 59 in development. The majority of these are either trivia games or classics such as chess, backgammon or card-based games. One publishing giant looking seriously at the possibilities of this emerging market is Infogrames. It first got involved with iTV back in 1997 and is bringing two games to NTL's package. *Open Tennis* is a reworking of an old title that has been rebuilt with addition of networking code to support a twoplayer mode. Its other title is a card-based game called *Asterix Runarix*. According to one company source, an in-house team is also preparing a multiplayer iTV version of the acclaimed PC adventure *Outcast*.





Open Tennis may not be the most thrilling multiplayer title, but *Castle Conquerors* (top) offers FPS action for up to 100 players. *Berlin Assassins* (top left) is an episodic experience



BAFTA awards call for entries

August deadline nears for nominations in industry's most lavish bash





This year's BAFTA Interactive Entertainment Awards ceremony – of which **Edge** is a media partner – will take place on October 26 at the Royal Lancaster Hotel in London. Nominations will be announced in September, a month after the Friday August 25 deadline for entries. This year there are a total of 21 categories, including three separate games sectors – PC, Console, and Mobile or Networked – and an award for Best UK Games Developer. Interest has been running high, with more entries for console than PC to date.

Since the event was launched in 1998, the BAFTA awards have grown in stature. **Sue Thexton**, chair of the Interactive Entertainment Awards Committee, is convinced the project will continue to flourish: "In 1999 we attracted the best creative talent from the interactive industry. We are confident that 2000 will be another milestone year for BAFTA Interactive, reflecting the stunning growth of the industry."

BAFTA also hosts a series of monthly events relating to new media and the interactive industry. September 14 will see 'WAP: What Next?' being held at BAFTA HQ (195 Piccadilly, London), with speakers including Dr John Ricketts of Ogilvy Interactive Japan and Steve Jackson of Lionhead Studios outlining the current applications of mobile technology in the entertainment and business sectors.

Awards entry forms can be obtained online at www.bafta.org, or by contacting Dan Boothby at the BAFTA Interactive Entertainment Office (tel: 0207 734 0022 or dboothby@bafta.org).



Last year THE's Dick Francis (above) picked up a number of gongs for Nintendo. Lord Puttnam (centre left) is the big cheese

Edge to go Live in September

New conference aimed at dev and publishing community looms large



Milia 2001 will take place at the Palais des Festivals in Cannes from February 10-14, with a Think Tank conference being held on the first two days. Some 7,000 industry delegates – including 600 developers – attended the 2000 event, and it is hoped that attendance will be up next year.

In the meantime, **Edge Live**, in association with Milia, will take place at the Hilton Olympia hotel in London on September 4. The event is **Edge**'s first conference dedicated to the videogame development and publishing community, and it will consist of a panel of industry experts discussing a selection of issues in front of trade and industry delegates, followed by topics from the floor. The panel will consist of Kevin Bachus, Microsoft X-Box division; Phil Harrison, SCEA; Gary Liddon, Climax; Peter Molyneux, Lionhead; David Perry, Shiny Entertainment; and **Edge** editor Tony Mott. The discussion will cover new technology and its impact on the playing experience. Milia's research partner, Forrester, will present an analysis of market trends.

Entry is strictly to the trade and by invitation only, but there may be places left. Those wishing to attend should email their name, position and company to edge.live@futurenet.co.uk.

In February Milia 2001 will retain the same Cannes venue as last year (above). Meanwhile, the organisation is co-sponsoring Edge Live, featuring six panelists including (right) David Perry, Phil Harrison and Peter Molyneux







Apple bites back with Cube kit

Steve Jobs shows off company's square image to beguiled NY audiences

Apple CEO Steve Jobs recently unveiled the company's new generation of products at the New York Expo, showing that, design-wise, Macintosh still leads the field.

Following the phenomenal success of the iMac series and the multiprocessor G4, the company has managed to outdo itself with the G4 Cube. Small, but perfectly formed, the eight-inch cube is unarguably the sexiest piece of hardware Apple – or any other computer manufacturer – has ever produced.

True to Apple tradition it bears none of the clunky looks of any other computer. From the crystal-clear casing to the air-cooled fanless design, which makes its operation quieter than a whisper at just 15db, it is the sort of object that demonstrates why designers exist at all. The vertically loading DVD-ROM drive has a perfect action, and in New York Jobs could not resist demonstrating how the guts of the Cube can be extracted in a couple of seconds by flipping it upside down, pressing a pop-up handle, and then simply lifting out the entire innards for easy upgrade.

At the heart of the Cube is a PowerPC G4 processor running at 450MHz with a 1Mb backside level 2 cache. The built-in Velocity Engine in the chip makes it able to perform more than three billion calculations per second. In terms of raw processing, the Cube can outperform a 1GHz Pentium machine by 1.2 times running the likes of *Photoshop*, which more than qualifies it as a serious gaming platform.

Underneath the hood

The 450MHz Cube comes with only 64Mb RAM as standard, but is capable of holding a healthy 1.5Gb. The 20Gb Ultra ATA/66 should prove an ample performer, while the Cube's dedicated AGP 2X slot is preinstalled with an ATI RAGE 128 Pro graphics card containing 16Mb of SDRAM, which will hold *Quake III* at a steady 30fps. The Cube also offers two USB ports, each with its own dedicated 12-megabits-per-second channel. For high-bandwidth expansion to 400 megabits per second, two FireWire ports enable the addition of extra hard drives, printers, scanners and digital video cameras. Apple has also included a 56K v.90 modem and 10/100BASE-t Ethernet as standard, and Gigabit or 1000BASE-T Ethernet can be installed or built to order from options at the Apple Web site.

The qualities of the Cube do not stop there. Apple has used Harman Kardon audio technology to build the most gorgeous of small, powerful speakers which complement the Cube in both design and appearance with a frequency response of 80Hz to 20KHz. Apple has also devised a new optical mouse, which is housed in a matching crystal-clear enclosure. Ergonomically exceptional, the entire upper section of the mouse acts as a

From the crystal-clear casing to the air-cooled fanless design, it is the sort of object that demonstrates why designers exist at all



Apple also unveiled its new TFT flat panel displays, which naturally complement the swoonsome design of the rest of the suite

button. The tension of the responsiveness of the click can be adjusted to offer extra flexibility and comfort.

Apple has also created a similarly styled, full-size keyboard that offers two powered USB ports for accepting extra peripherals and includes new audio control keys and a media eject key.

With its New York announcement Apple made it clear that it still leads the world in revolutionary computer design, and the Cube has now staked its claim to take the lead on the company's product list, its looks backed up by convincing performance.

Bungie says Halo

Macintosh stalwart allays vocal fears from gaming community

Bungie CEO **Alex Seropian** confirmed at the New York Expo that *Halo* (below) will definitely appear on the Mac. After Microsoft acquired Bungie Software, doubt over the future of Bungie Macintosh titles grew, as Bungie moved to work on X-Box software. However, Seropian quashed rumours, saying: "We still have a lot of love for the Mac platform." It is also clear that *Halo* is just the beginning, with Bungie having access to new resources thanks to its new partners at Microsoft. Ed Fries, Microsoft's vice president of games, revealed that a new company has been established to ensure all existing and future Microsoft games will be ported to the Mac.





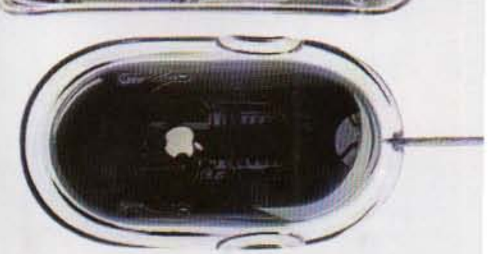




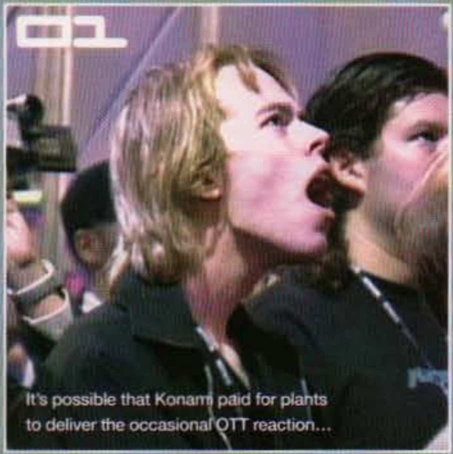


Flip the Cube upside down and its architecture can be easily exposed. This process is not unlike something out of a sci-fi movie

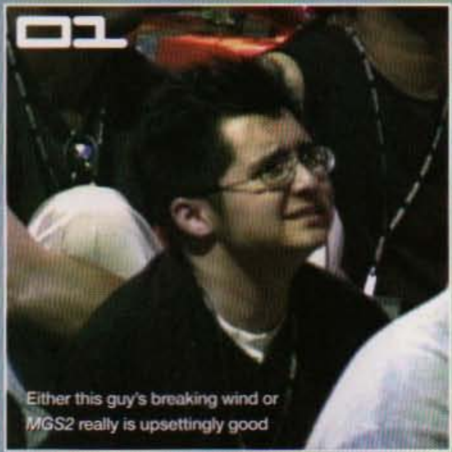


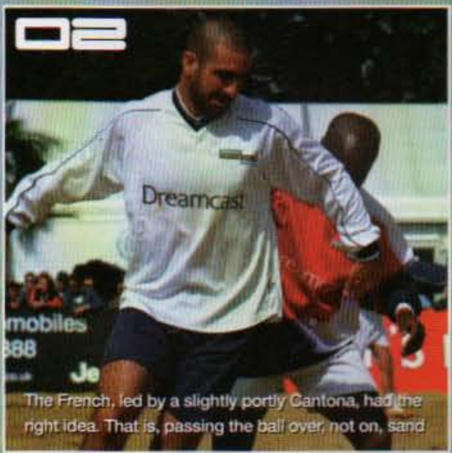



Ten quid says this guy's opinion was that *MGS2* 'rocks, man!'


It's possible that Konami paid for plants to deliver the occasional OTT reaction…


Never let it be said that hardcore gamers ask to be pigeonholed

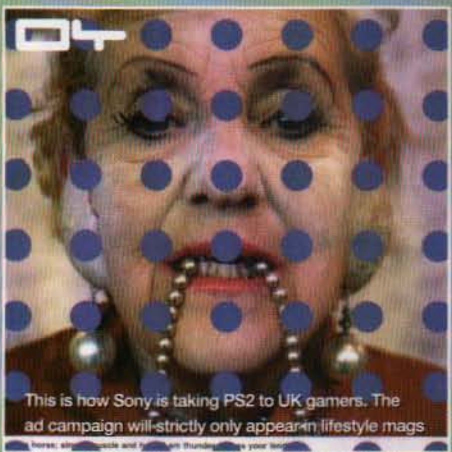

Either this guy's breaking wind or *MGS2* really is upsettingly good



The French, led by a slightly portly Cantona, had the right idea. That is, passing the ball over, not on, sand



Mmm… Sony PDA


This is how Sony is taking PS2 to UK gamers. The ad campaign will strictly only appear in lifestyle mags


Look, says Sony, we're down wiv ver kidz, right?

OUT THERE
REPORTAGE

01 MGS2 brings out the emotion

Japan: A special-edition DVD dedicated to *MGS2* hit Japan's stores on July 6. Though it doesn't contain any new game footage, extras include an exquisite 'documentary' shot at E3.

The film records the reactions of attendees worshipping at the altar of Kojima-san's project. Focusing particularly on individuals in states of rapture, open-mouthed adoration and watery eyed reverence, the documentary could become an anthropological reference work in years to come.

"Thank you, Mr Kojima, for all the years of *Metal Gear*," enthuses one. Another confesses: "I'm going to give it game of the show, and I haven't even been to the show." Priceless.

02 Sega hits the beach

UK: Journos recently savoured Eric Cantona's first footballing appearance on British soil since Alex Ferguson's testimonial thanks to Sega. Appearing at the inaugural Dreamcast Beach Football Challenge in Richmond on Saturday, July 15, he led his French team to victory over the Manchester United Greats, Arsenal All Stars and Liverpool Legends. For those with attention spans too short for the six-minute halves of beach football, there was a tent full of DC pods running games including *Virtua Tennis*, *Crazy Taxi* and *Fur Fighters*.

03 PlayStation2 in your hand

Japan: The PDA market has just taken a sexy turn thanks to the introduction of Sony's new unit, compatible with its range of Vaio PCs. PS2 link-up via USB is also reported to be possible.

04 Sony goes back underground

UK: Sony has kicked off its PS2 campaign by plastering the logo all over a club-promoting, build-it-yourself cardboard lowrider which has been falling out of style mags across the UK. Meanwhile, its key press ads feature elderly folk covered in blue dots and accompanied by obscure, obscured text. Mmm, nice.

Data Stream

- Number of days taken to sell out 50,000 copies of *Virtua Tennis* in the US: **four**
- Sega's net losses for year 1999: **¥42.9bn**
- Estimated profits for Sega for fiscal year 2000: **¥1.5bn**
- Square's monthly subscription cost for playing *Final Fantasy XI* online: **¥1000 (£6)**
- Proposed new use for the Millennium Dome: **amusement park funded by Japanese company Nomura International**
- Name of Apple's new G4 power Mac: **Cube**
- Proposed name of Nintendo's 128bit console: **StarCube**
- Game which provoked the Keep America Beautiful organisation to contact Sega: ***Jet Grind Radio***
- Game ruled as 'pornographic' and removed from shelves in Canada: ***Soldier of Fortune***
- Number of Web sites closed down by Sega due to piracy infringement: **60**
- Number of auction sites closed down by Sega for trafficking counterfeit games: **125**
- Size of Ion Storm's first *Daikatana* patch: **44Mb**

05 Retro show uses up third life

UK: Ostensibly an event to celebrate the history and origins of videogames, Britmeet 3 also served as a focal point for trade and debate. This year the event took place at Hertfordshire County House on June 24, and attracted more than 200 fans who sampled the likes of Colecovision *Zaxxon* and Atari 2600 *Video Olympics*. Trivia quizzes and laughable video footage of Atari presenters giving advice on how to crack *Yar's Revenge* were additional delights. A bigger event of this type is happening soon in Las Vegas. Expect a report next month.

06 FIFA bods strip Robbie

UK: You've probably seen the video, featuring renowned pop chubster Robbie Williams being stripped of clothes and flesh until he resembles a shadow (well, skeleton) of his normal self. But you may not be aware that the production company behind the short, Clear, called upon the talents of Oxford-based mo-cap house AudioMotion to make it happen. That's the outfit previously responsible for *FIFA*'s animation. Good work, chaps.

Soundbytes

"With tits like that, I don't know how she can jump about without causing an earthquake"
Angelina Jolie on Lara Croft, who she will portray in the forthcoming 'Tomb Raider' movie

"The site looked like a plague of Pickachu Pokémon"
NME on T in the Park. They could at least try to spell it properly

"Mobile phones could account for as much as half of the game industry as a whole"
Konami president **Kagemasa Kozuki**

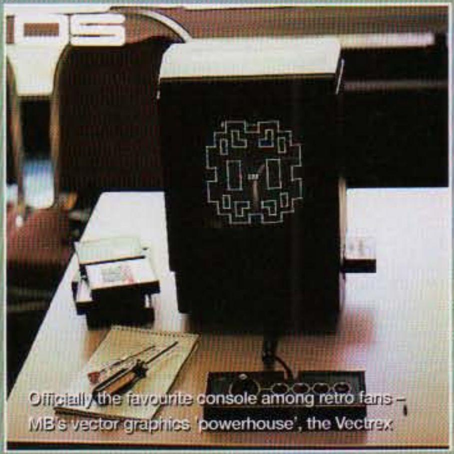
"For those who argue against regulation on the basis that it would stifle creativity, but create games that let us resolve conflict only by blowing our enemies to bloody bits, it's time to show us more creative solutions – while they still have the chance"
Phil LoPiccolo, editor-in-chief of *Computer Graphics World*, on the videogame violence debate

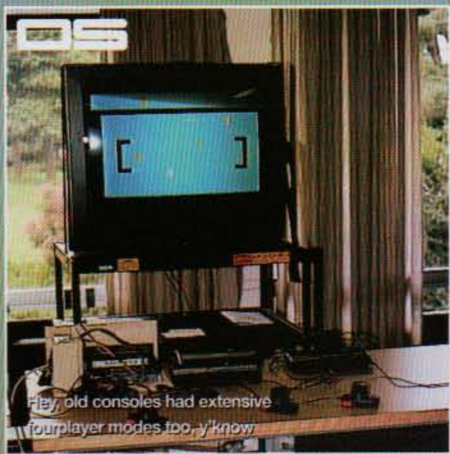
"My ex-husband Jonny [Lee Miller] used to play [*Tomb Raider*] all the time, and I used to compete with this woman!"
Angelina Jolie, again

"Just imagine having sex with a superhot model. That pretty much sums it up"
John Romero on his relationship with Stevie 'Killcreek' Case

"Shoot 'em up *Gradius*, meanwhile, looks like one long action sequence from something like 'Star Wars', although nobody knows what it is like to play"
Steve Boxer in *The Telegraph*. That'll be the prerendered intro, Steve


A familiar face or two could be found between the rare Japanese imports draped over myriad stands

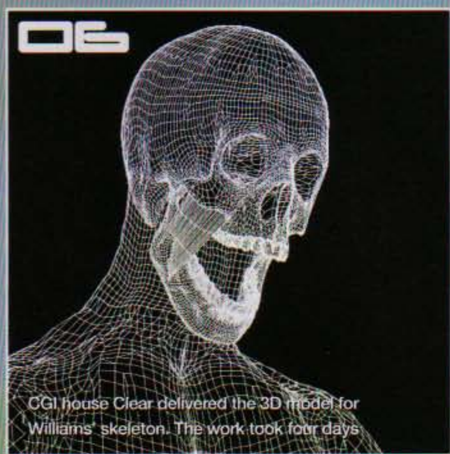

Officially the favourite console among retro fans – MB's vector graphics 'powerhouse', the Vectrex


Hey, old consoles had extensive fourplayer modes too, y'know

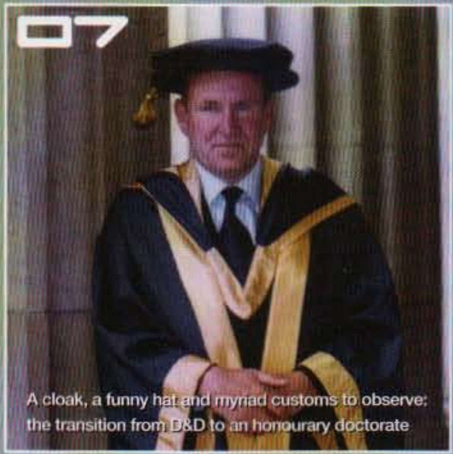

Was there ever a more durable joystick than this little fellow? Such an understated beast. Sniff


The epitome of a pile-'em-high-and-sell-'em-cheap policy in action. But where are the original boxes?

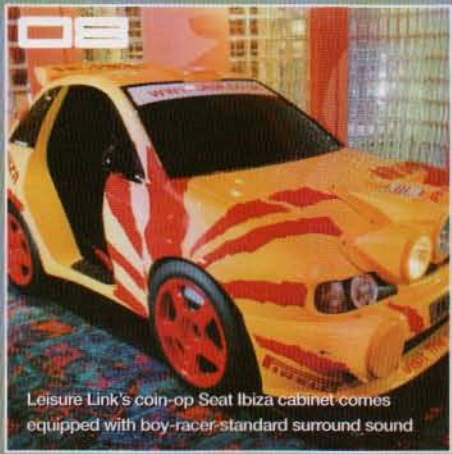

In order to make the vid happen, Williams had to squeeze into a super-tight lycra suit. Easy, ladies


CGI house Clear delivered the 3D model for Williams' skeleton. The work took four days


Nine Vicon motion-capture cameras were used to record movement data, and all within one hour

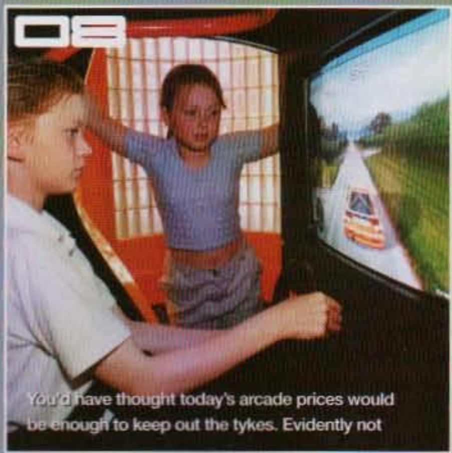


A cloak, a funny hat and myriad customs to observe: the transition from D&D to an honourary doctorate



Leisure Link's coin-op Seat Ibiza cabinet comes equipped with boy-racer-standard surround sound





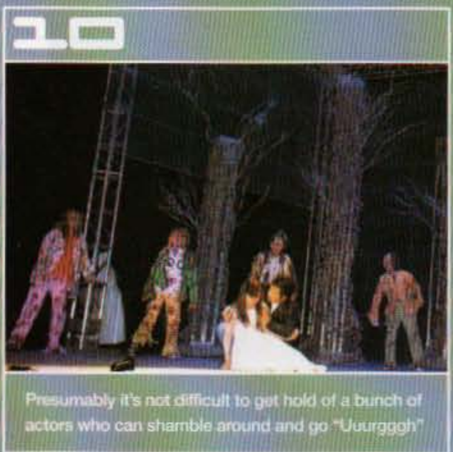
You'd have thought today's arcade prices would be enough to keep out the tykes. Evidently not



Dream or nightmare? Jaleco's karaoke-based coin-op has been ported over to PS2 for home use



The game incorporates a Speed mode, in which the tempo fluctuates. A twoplayer mode is also in place



Presumably it's not difficult to get hold of a bunch of actors who can shamble around and go "Uuurgggh"



07 Doctor Livingstone, I presume

UK: When Ian Livingstone started selling copies of TSR's Dungeons & Dragons from a van, he can't have known that he was beginning a career that would include the sale of Games Workshop for £10 million, the co-creation of a series of game books that sold more than 14 million copies, and being indirectly responsible for Lara Croft's rise to prominence. Now that he has been made an Honorary Degree of Doctor of Technology by the University of Abertay, Dundee, the only question is: where does he go from here?

08 How to build a PC coin-op

UK: Magnetic Fields' esteemed racing sim *Rally Championship* is making the move over from PC to the arcade thanks to Brit coin-op outfit Leisure Link. Following Namco's Ridge Racer, which used a real-life Mazda, arcade *Rally Championship* uses a three-quarter-size Seat Ibiza. Watch your local Megabowl...

09 Jaleco opens arcade auditions

Japan: The Japanese obsession with karaoke has taken a new turn with the release of Jaleco's *Dream Audition* coin-op. The machine, complete with mics and onscreen lyrics, offers several modes, including a Speed mode where the tempo rapidly changes, and a twoplayer cooperative challenge. The system has proved so popular in Japan that Jaleco has also released a PS2 version complete with mic peripherals.

10 Capcom's zombies break a leg

Japan: After the success of *Biohazard* music concerts and orchestral CDs comes a Japanese musical based around Capcom's famous series. The theatrical production with musical interludes is lead by Hiroshi Miyake, and debuted recently in Ikebukuro. Though the production is said to be very short, it is gathering momentum and will lurch around many Japanese cities during the summer.

Continue

Apple's new Macintosh hardware
Like something out of a '70s vision of 2000. Except not naff
Konami's special-edition *MGS2* DVD
And not only because **Edge**'s editor briefly features, oh no
Mini pool tables
Surely the cornerstone of any modern working environment

Quit

***TOCA World Touring Cars*' 'Matrix'-esque replays**
Yes, it has lashings of 360° time slicing. You will laugh
SNK's decision to pack in western NGPC support
Taking on Nintendo was never going to work
Firstparty Dreamcast controllers
Continued *Jet Set Radio* play heightens their inadequacy

11 Plague Wars

This is no game. Things may have calmed in Iraq, Shoko Asahara – leader of the Japanese cult that released nerve gas on the Tokyo subway – may have been brought to justice, but the true threat of biological weapons is only just beginning to emerge across the world.

It sounds like Cold War scaremongery, but, according to Tom Mangold, nothing could be more real. In this monumental book Mangold delves into the darkest and most sinister governments where biological weaponry is being developed and – in some awful cases – put to use.

As a BBC war reporter, Mangold has visited the most controversial countries in the world, met with their military leaders and discovered some shocking facts. In this book he identifies the real 'Plague Warriors', the people he believes are behind these terrible weapons. These include, for example, a South African bioweapons expert who Mangold claims hired killers equipped with screwdrivers that doubled as lethal syringes of deadly biological agents to rub out anti-apartheid activists. Tracing the bioweapons arms race between Russia and the US, Mangold singles out individuals, corporations and governments still active in bioweapons, despite the UN Biological Weapons Treaty banning their proliferation.

He concludes that biological terrorism is a very real and growing threat, and predicts knowledge from the human genome project and our increased understanding of genetics will serve to develop even more lethally efficient weapons. Part political thriller, part history of the late 20th century, 'Plague Wars' reads as effortlessly as fiction. Unfortunately, this is no work of the imagination. Chilling.

12 Look To Windward

Iain Banks is a book factory. He writes new novels about as often as some people buy them – at least one a year – and, despite the rate, produces gems few authors can match.

Here, with the trademark 'M' thrust into his name – the letter which distinguishes his sci-fi nom de plume from his general fiction alter ego – Banks sucks yet more inspiration from TS Eliot's poem 'The Waste Land', and returns to the universe created in his last Culture novel, 'Consider Phlebas'.

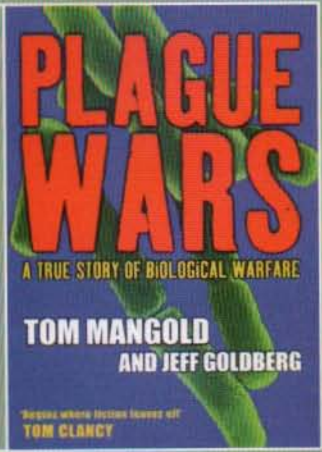
'Look to Windward' opens in the Masaq Orbital, an artificially created world whose inhabitants go rafting on lava flows for fun. In Banks' previous Culture novel, the Culture's diplomatic intervention in Chelgrian inter-caste affairs led to a terrible civil war that wiped out stars and killed billions.

Now, eight centuries on and lightyears away, the light from the explosion of the suns is about to wash over Masaq, bringing with it memories of the humanitarian advice gone wrong. To mark the occasion Composer Ziller, a Chelgrian in self-imposed exile to Masaq, is writing the symphony of his life. Meanwhile, the Chelgrians have sent an emissary to Masaq to persuade Ziller to return to Chel. But Major Quilan's true mission soon unfolds as the plot takes its hallmark Banksian dark twists.

Banks ponders morality and the meaning of life in a world gone mad with technology, all with a generous helping of slapstick humour and a boundless imagination for detail. If you buy one SF book this year, make sure this is it.

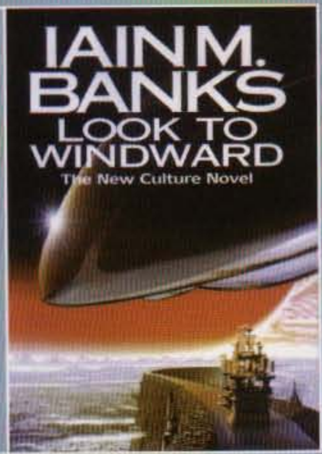
11

Authors: Tom Mangold and Jeff Goldberg
Publisher: Pan
ISBN: 0330367536



12

Author: Iain M Banks
Publisher: Orbit
ISBN: 1857239695



13

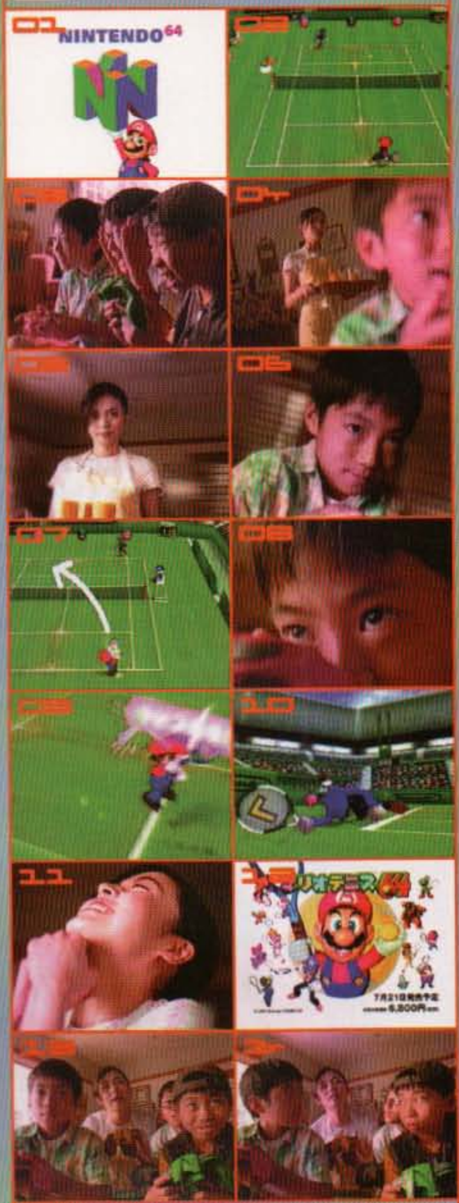


Site: **Dr Pretzel's OVERCLOCKED REMIX**
URL: **http://remix.overclocked.org/**

13 Web site of the month

US: The beauty of the Internet is not that it builds communities or that it has created a business revolution in the form of ecommerce but that it allows one man to remix the music from *Bubble Bobble* in a hilarious drum'n'bass style and make it available to anyone with a computer and modem connection. That one man is DJ Pretzel, and thanks to him the **Edge** office has recently been buzzing with various mixes from the likes of *Space Harrier*, *Chrono Trigger* and *Shinobi*. As well as being clean in its design, easy to navigate, and will particularly user-friendly for downloads, the site acts as a meeting point for other like-minded tunesmiths by hosting their work. Much of the content sounds raw, and some of it positively grates (check out the jazz reworking of the *Super Mario Bros* theme if you're feeling particularly masochistic), but rarely does it fail to raise a smile.

14



14 Advertainment

Japan: Nintendo may be preparing to deliver a glimpse of its Dolphin technology at SpaceWorld, but the company remains committed to promoting its N64 wares, as illustrated by its recent TV campaign for the humorously styled *Mario Tennis*. Don't expect a similar effort for the PAL release.

01. Ad opens on familiar logos. (Is it supposed to look like Mario's singlehandedly supporting the brand?) 02. Nintendo gets in nice and early with some game footage 03. Exciteable kid: "Come on, we're gonna lose!" 04. Mother enters with refreshments 05. Mother: "My son, tennis is strategy" 06. Son: "I know, mum..." 07. "... I shoot like this to create space..." 08. "... and then..." 09. "... strike!" 10. The missile-like ball knocks over Mario's opponent, Waluigi (evil Luigi) 11. Mother: "Yeeeah! This is it, my son!" 12. Mario pops up again, accompanied by every other character in the game 13. Mother: "*Yeeess!*" 14. Kids (bemused): "*Huh?!*"

This is a side of the games industry that you aren't supposed to see. Two pale-chested hacks from the nationals lazily steering a pedalo off the coast of France, a beer in one hand and the fingers of the other trailing in the water.

"I'm bloody glad I'm not up that mountain," says one, peering over his shades at two topless teenage girls rummaging around in their bags, who are also being studied by a group of fat old cow-eyed men, huddled like decrepit buffalo at a watering hole. "Shut up and pedal," says the other.

Two hundred miles away, on a mountain at the foot of the Alps, a significant percentage of Europe's videogame journalists are discovering that a Rumble Pak is no preparation for the real thing as they hurl themselves down Europe's most famous slopes. Like 'Wacky Races' come to life, everything from ropes and mountain bikes to three-wheeled scooters are called into service



REDEYE

Commentary from inside the videogame industry

PR and journalism: how does the game work?

to facilitate the barely controlled plunge.

One editor already sits on the sidelines, watching the commotion as he nurses a sprained ankle. By the end of the day, two more will find it hard to stand up straight, another will require stitches, and the PR guy will have a new nickname – Robocop – on account of his metal-braced hand.

Welcome to a games industry press event. Where previous generations had war to prompt them into wondering what is the point of it all, RedEye gets a £400-a-night hotel room and all the seafood he can pack into his ever-expanding gut. "£400 a night!" exclaims the guy from an infamous lad's mag, as he picks over the flotsam and jetsam of yet another fruits de mer banquet. "This industry is rolling in it. They don't get this sort of treatment on *Rolling Stone*."

"No, but they do get cocaine and teenagers in the toilets of Madison Square Gardens," says the former music journalist.

"Hey, I've got teenagers hounding me all day," says a writer who wanted to pen a novel, but instead compiles tips books. "I'll take my hospitality in used tenners, thank you very much."

Someone tells a story about a marketing manager at a now-deceased British publisher who used to throw his arms around any two pimply games journalists at industry parties and gruffly announce: "I've done all right by my boys, and they've done all right be me."

"Oh, I feel so used," smirks a heavily bandaged young writer. Everyone laughs, a little too readily.

"Yeah, but seriously, do they really think it works like that?" persists the smirker, as his colleague ferries more distant food supplies to within reach of his unbandaged arm.

"Nah, it's just to give the PRs a break from hassling us back in London in the rain," says the lad's mag scribe. Everyone laughs. Again, a little too readily.

Perhaps there is no catch. But people say that they don't notice advertising, yet Coca-Cola is the biggest brand in the world. And they say they can switch off the TV any time and that they only tune into intelligent documentaries about genetic engineering, but the spike for 'Who Wants To Be A Millionaire' dims the streetlights. Certainly, press events (as opposed to press trips, which at least involve a visit to a foreign developer) are the archetypal 'good laugh' – for participants and bystanders alike. Half a dozen wheezing games journalists clinging on to camels bound for the Great Pyramids in Egypt on the pretext of *Tomb Raider*,

Most game journalists have all the moral fibre you'd expect to find in a 22-year-old – so there's precious little to corrode

then being taken for a leisurely cruise down the Nile (with piles of Cairo's finest food and drink laid on, naturally) before being sat in front of a half-hour video presentation consisting of mostly prerendered footage raised eyebrows at the most senior levels.

Another outing saw British writers subjected to a make-believe hijacking in the Bronx – their journalistic antennae failing to distinguish between the glamour models hired to point water pistols in the air and the real-life ghetto boys lurking outside the bus. The same trip saw a now TV-famous model vapidly pulling her plastic pistol from her luggage in front of American airport security guards, with predictable results. That is the world that's made real by PR. The unusual is brought into your life for a few days, with a press CD tucked into your bag at the trip's end and your pockets stuffed with the business cards of foreign journalists you'll never call, but you do meet again some sunny day, 4,000 miles from home.

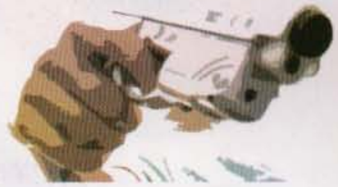
You eat in the swanky restaurant over the road from your usual Pizza Express for starters. Next thing you know, you're driving a tank – wrestling a whopping great control stick that smells of oil rather than the no-smell of a joypad. You fly an aeroplane. You jump out of the next one. You upend your motor in a stock car race on the Isle of Wight. You're given life on a plate. You get a tan. RedEye isn't even about to tell you what he has seen some of the industry's great and good do with women of ill repute in far-flung cities. Yet.

Alas, the days of the truly ridiculous trips have passed by – as those days are wont to do. The major media companies are now at least as powerful as the major software companies, and they're keen not to associate their young troopers with anything that might be termed, aptly, a 'jolly'. It's left to anarchistic freelance writers to risk the more dubious sorties, with the magazine's full-time staff left unmolested.

The arguably corrosive effects of press events on the moral fibre of journalists don't worry RedEye, however. Principally because most game journalists have all the moral fibre you'd expect in a 22-year-old, so there's precious little to corrode. But also because the ability to schmooze and booze works both ways. Who's in a more compromising position, a journalist enjoying a perk of his job or the fresh-faced PR ingenue clutching a company credit card with her name on it and responsible for a bus of know-the-score journalists? Many a battle-scarred editor has returned home with exclusive stories or demos under his belt, thanks to a choice piece of table turning thanks to charming the pants off a PR.

Who's zooming who? That's a question for philosophers, lyricists and sociologists. RedEye is more concerned with looking out for himself – and watching his back.

RedEye is a veteran videogame journalist. His views do not necessarily coincide with* Edge*'s



TRIGGER HAPPY

Steven Poole

Characterisation: designing a believable virtual skin

How do we inhabit a character when playing a videogame? As games toy with ever more fluidly 'cinematic' techniques, there's an increasing tension between 'being' the character under control, and then sitting back to watch him or her in the cut-scenes. This is problematic enough in a thirdperson action-adventure. But apply that personality-based paradigm to a firstperson game and some harsh contradictions arise.

Over the summer, as *Perfect Dark* exploded off the shelves, a marketing campaign sought to assure us that its heroine, Joanna Dark, was the new Lara. But the two digital females are, in fact, gameplay opposites. For a start, the character aesthetics of Joanna Dark are drawn from disappointingly bog-standard sci-fi fetishism. Rendered artwork of the seductively reclining spy shows an outfit that is designed with hilarious disregard for practicality. Her leather-and-plastic black boots have absurdly high heels; her thighs and forearms are encased in articulated metal tubing. Her scoped Falcon 2 nestles in a low-slung leather holster, and a thin belt running around her abdomen, just below her breasts, holds only about ten extra rounds of ammo. This woman could not possibly succeed in missions of stealthy infiltration: the metallic clanking of her outfit would give her away immediately, and then she'd fall over in her silly footwear.

Dark's example emphasises just how clever, by contrast, were the character aesthetics of Lara Croft four years ago. Sure, her ever-inflatable breasts have marred every sequel. But remember that most women in videogames before or since perform acrobatics in flappy dresses or S&M basques and thongs – disappointingly, Namco didn't give *Soul Calibur*'s Ivy an animation for picking her G-string out from between her arse cheeks after a particularly energetic kick. Croft, on the other hand, was at least dressed practically, in shorts and sensible shoes. The fortuitous inclusion of a backpack (originally to hide a polygon break at the waist) also went some way to lending verisimilitude to the enormous arsenal of weapons that Croft could carry at any one time. Where does Dark put them? No, don't answer that.

But, of course, the major difference between Dark and Croft is that of perspective: the mode of spatial representation. In *Tomb Raider*, we see our character in full from an external viewpoint. We are a disembodied pair of eyes, swooping and spying on the gameworld heroine. In *Perfect Dark*, on the other hand, we hardly ever see Joanna except in the nastily animated, blocky cut-scenes. The inevitable consequence is that, in a firstperson shooter, a crucial part of a videogame character's identifiability is lost.

Game characters are seductive in two separate ways. They can simply be pleasing iconically: they can look nice as images. Joanna Dark satisfies this criterion in her derivative, comicbook way. But the second major attraction of videogame characters, which the FPS necessarily fails to fulfil, is a dynamic one. It's through a dynamic attraction that we are sucked into the game and made to care for our character by the pleasure of how he or she moves under our control. Croft's hip-swinging walk, her jumps, somersaults and rolls, made her interesting; Solid Snake is a joy to control as he flattens up against a wall or stealthily breaks a neck. Even the extremely simple, stupid heroes of *Lemmings* made you love them through animation: the silly hair, the pathetic waving arms when they fell to their doom.

So, despite some lovely touches in *Perfect Dark* – the way the camera zooms right inside Joanna's head at the beginning of a level; the way you can turn round the CamSpy and look at her through a fisheye rasterized display – you don't actually feel embodied as the heroine. Sure, you can see her forearms, but if you look straight down, you don't see any of her torso, or her feet. In the cut-scenes, meanwhile, she performs acrobatic manoeuvres – sliding down planks, jumping around – that are incoherently denied to us within the game.

Paradoxically, one has a greater sense of being Lara Croft or Solid Snake, even though our viewpoint is divorced from theirs. This is precisely because we can see and control in full their bodily, dynamic activity. Nor do Dark's changing costumes alter gameplay, which would be an interesting problem for designers in the future. At the start of the Carrington Institute hostage level, for example, the cut-scene shows Joanna haring off to combat in a long, tight cocktail dress. A sense of being Joanna would naturally increase if that actually hindered our movement through the level in interesting ways.

The notion of 'character' in firstperson shooters is, therefore, highly compromised. The philosophical given of an FPS – what makes the genre so exciting – is that this is really you, acting in this wondrous environment. Any 'emotions' ought simply to be our own – our awe at the architecture; our fear, cunning, and triumph. So, asking us to believe that we are some sci-fi heroine, and having badly acted conversations prescripted for us, contradicts that initial premise. If we are 'playing' a character in this context, it should only really be a blank template – an instantly recognisable costume that we pull on. I'm a marine fighting demons from hell? Fine. That's all I need to know.

That was exactly why *GoldenEye* worked so beautifully. Your character was already part of the pantheon of modern myth, and most probably the subject of a few daydreams over the years. 'I'm Bond? Okay! Of course I am!' No further explanation, or 'characterisation', was required – or even desirable.

> Disappointingly, Namco didn't give *Soul Calibur*'s Ivy an animation for picking her G-string from her arse after a particularly energetic kick

It's no surprise, after all this, that the most comically entertaining 'characterisation' in such games – the *Duke Nukem* series – has, in recent instalments, switched from a firstperson to a thirdperson perspective. The rule is simple for videogame designers. If you want to convince us that we're someone else, you need to show us who they are.

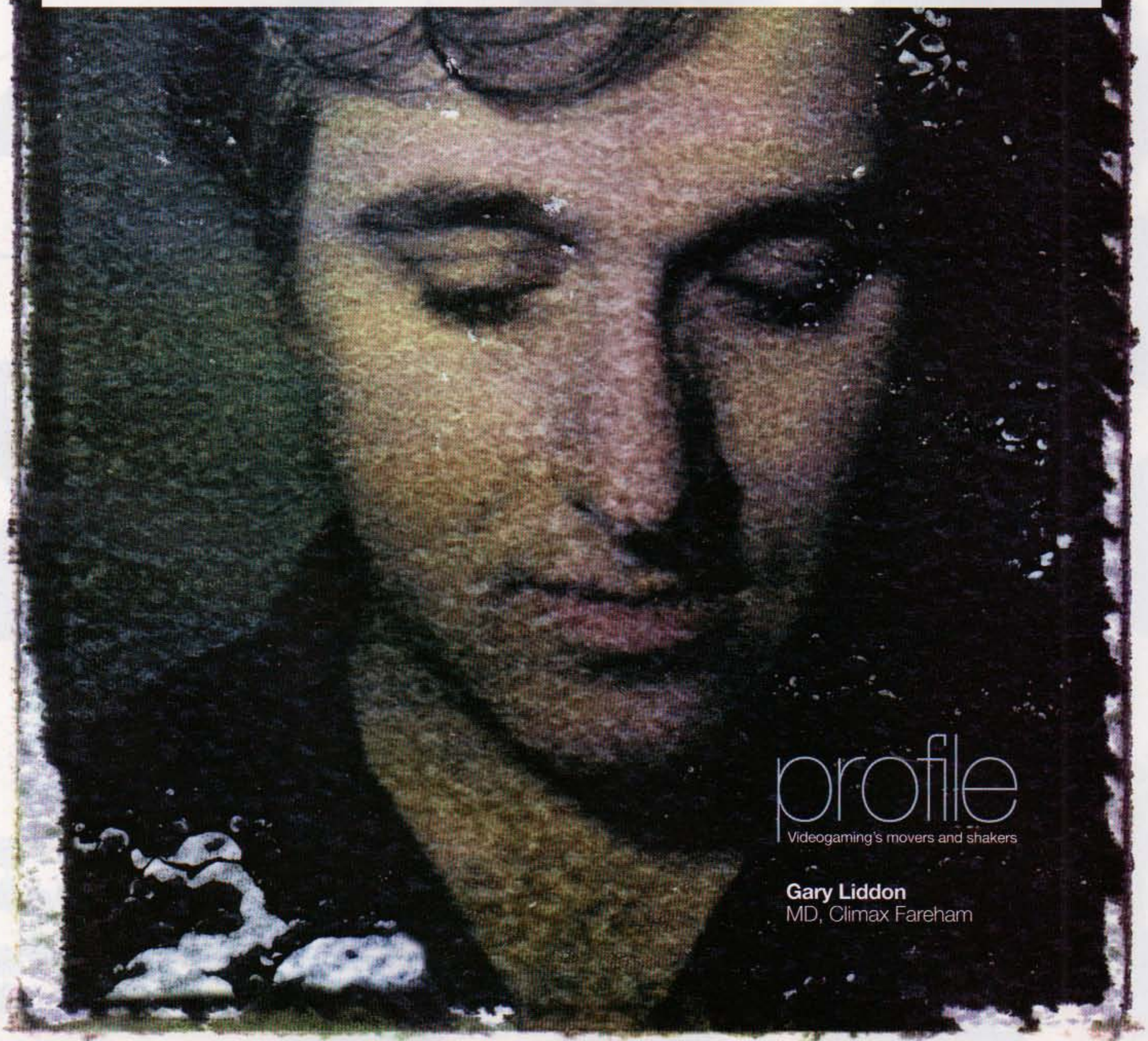
Steven Poole is the author of 'Trigger Happy: The Inner Life Of Videogames' (Fourth Estate, £12)

The name may be familiar, albeit from some dusty avenue of videogaming's distant, bedroom-occupied past. At Newsfield on *Zzap! 64* magazine, with Gary Penn (now at Scottish handheld specialist Denki) and Julian Rignall (still in journalism, with online giant IGN) he made up a trio of the first computer games journo personalities, three arm-chancers with whom readers built an unusual sense of trust.

Now, 15 years later, the hair shows streaks of silver and the waistline a few more inches, but he can recall the era of paste-up layouts and shots taken by cameras pointed at TV screens as if it were yesterday. "The whole thing back then was just having a laugh," **Gary Liddon** recalls with no small amount of incredulity. "In the end, that seemed to be the entire reason for the magazine existing. I couldn't even see how most of the readers understood a lot of the things we wrote, to tell you the truth."

Prior to Newsfield, Liddon wrote for the ill-fated *Big K*; afterwards he helped to set up Thalamus, which brought the glitzy shoot 'em up delights of *Sanxion* and *Delta* to C64 owners. Since then he's been all over the industry, coding 8bit games for Firebird, being a part of EA UK at its outset, working at Beam Software in Australia (he wrote the NES conversion of *Last Ninja 2*), producing at Probe (Mega Drive *Mortal Kombat* was one of the many projects he oversaw), coding some more on both 16bit and 32bit, and generally having a hand in countless other games you'll no doubt have unwittingly come into contact with. He began working as a contract programmer with UK developer Climax in 1997. Seven months ago he was invited to head up the company's Fareham arm. He accepted.

Having handled a string of licensed titles and super-successful PC-to-PlayStation conversions, he now faces the prospect of delivering original content. The Games Workshop *Warhammer On-Line* project is one forthcoming biggie for the codeshop, but X-Box and GBA games are on the way, too. "It's a step," he admits. "Hopefully not a big step. We're not saying we're going to turn over the entire studio to original stuff. There is organic growth, and that's what we're trying to plot through. It is hard, it's tricky, but you've got to do the tricky stuff. You're dead otherwise."



profile

Videogaming's movers and shakers

Gary Liddon
MD, Climax Fareham

prescreen

Incoming electronic entertainment from across the globe

Edge's most wanted

Alien Resurrection

Argonaut's atmospheric title has been in development for more than three years, but it may yet turn out to be the PlayStation's most impressive 3D shooter.



(PS) Fox Interactive

Medal Of Honor Underground

German sentries picking up your hand grenades and throwing them back at you was just one sublime touch in the original. Expect more delightful moments.



(PS) EA

Half-Life

DC owners will soon know what all the fuss is about. With excellent narrative and genuinely cunning AI, *Half-Life* may serve to convert many to the format.



(DC) Havas

Driver 2

More vehicle types, a more comprehensive film editing system and the ability to move between vehicles continues to **Edge**'s appetite



(PS) Infogrames

Brain easers

Publishing strategies for mass appeal

No one would particularly contend with the statement that PC games are more taxing, more challenging and generally more difficult than their console counterparts. After all, PC owners have paid in excess of £1,000 for their hardware, and *Tomb Raider* conversions hardly push the limits of the machine. Sony, by contrast, makes no apologies for producing a machine constructed for, and promoted towards, the massmarket. Yet while PC game developers constantly strive towards cranking up the challenge for their gamers, console players must settle for simple switch-pushing and key-collecting in the way of puzzles.

Some would argue that this has always been the case, but do console gamers seek only hackneyed puzzle formulae? Contrast this month's two FPS challengers: *No One Lives Forever* (PC) and *TimeSplitters* (PS2). Arguably, the former title caters for a more hardcore audience familiar with the finer points of strategy. *NOLF* problems can be subtle and approached in a number of ways. Locks can be picked with a hair clip or, alternatively, sentries can be provoked into opening the doors for you. *TimeSplitters*, in contrast, is a tasty enough blastfest, but requires little brain power.

Ironically, a huge market for console strategy guides and cheat cartridges has emerged over the last few years. Does this indicate that games are getting harder, or that gamers are becoming less mentally agile? Indeed, the 'strategy' in strategy guides seems to be something of a misnomer – most consist of simple walkthroughs or lists of cheat codes. And there is little strategy involved in conjuring up the *Pac-Man* vehicle in *Ridge Racer 4*.

If games containing lever-pulling disguised as problem-solving continue to shift units, then more subtle ways of engaging the player's intellect will continue to be overlooked. But are developers to blame? Strategy games for the PlayStation are a risky venture. *Command & Conquer* stormed the charts for a short while, but the superior *Warzone 2100* pushed Pumpkin Studios into liquidation – one reason why the strategy elements in *Infestation* (below) have been toned down for its PlayStation iteration.

For publishers, the charts must take priority, and with videogames increasingly appealing to a wide section of the population, this mid band of massmarket punters will be the target. Ultimately, more discerning console gamers may have to collect a few more keys yet.





032



039



041



042

No One Lives Forever

Spying '60s style, a hefty dose of 'Austin Powers', and a central character modelled on a former face of L'Oréal make up Monolith's idiosyncratic take on the covert ops FPS









The action in *NOLF* takes place in a variety of locations that would put the average Bond film to shame. As well as visiting Morocco, Germany, the Caribbean and England, Agent Archer will also end up in the French Alps

Despite the news that Monolith has secured the rights to develop the sequel to *Aliens vs Predator*, it will be some time before it becomes clear how the company intends to assume Rebellion's mantle. Until then, a few clues may be obtained by playing *No One Lives Forever*, the latest story-driven firstperson shooter to feature the LithTech engine.

The game casts the player in the role of covert operative Agent Archer, whose appearance is based on former face of L'Oréal Mitzi Martin. The world inhabited by Archer/Martin is a pastiche of '60s spy adventures and 'Austin Powers'-style spoofs, and features outlandish characters and gadgetry.

With humour playing a large part in the game there is always the danger that the joke may fall flat. *Daikatana*'s execrable attempts ('Are you gonna quit this game just like you quit everything else in life?') demonstrate that differences in sensibility are sometimes difficult to traverse. *NOLF* attempts to avert this danger by playing it straight, with the humour in the game largely derived from its roster of bizarre characters and exotic gadgets. The former includes a frustrated descendent of Wagner and a rather over-the-top American agent with a Colgate smile; the latter a robotic poodle and exploding lipstick. Should any of these grate, it's easy to focus on the more serious design elements of the game instead.

At the heart of the game lies the latest iteration of the LithTech engine. Monolith's success in licensing the engine to other developers (including Gathering of Developers for *KISS: Psycho Circus* – see p109), prompted the company to create a subsidiary with the specific goal of refining the engine and toolset. Monolith CEO **Jason Hall** argues that this allows more time to be devoted to improving gameplay and level

Format: **PC**
Publisher: **Fox Interactive**
Developer: **Monolith**
Origin: **US**
Release: **Q4 2000**



The appearance of lead character Agent Archer is based on that of Elite model Mitzi Martin. Some of her enemies and accomplices are less grounded in reality

design: "I believe that people buy games based on content, not based on technology. LithTech should always take a back seat to gameplay."

The engine facilitates the usual complement of visual niceties, with specular highlighting, environment mapping and accurate model lighting. A weighted skeletal animation system allows the realistic depiction of movement, and – depending on which of the 18 damage zones is hit – enemies can fall down flights of stairs, topple from ledges, and even be blinded or knocked out. Another advantage of the engine is a seamless transition from outdoor environments to indoor areas, which has proved a difficult task to accomplish convincingly with other technologies. This has allowed the *NOLF* team to incorporate what appears to be some quite inspired level design.

The first of 15 oneplayer missions – there are ten multiplayer levels – commences in Morocco with a sniper-based mini level that offers a gentle introduction to the world of covert operations. Would-be shark hunters will be impressed by the underwater level (see 'Sharks'), while another mission takes place on board an aeroplane and culminates with a parachute descent during which Archer is a sitting duck for assailants. The most remarkable thing about these settings is that there is no single most effective approach to achieving mission objectives. Players can opt to storm into a situation with a twitchy trigger finger, bristling with weapons, but will be equally rewarded

The world of* NOLF *is a pastiche of '60s spy adventures and 'Austin Powers'-style spoofs, and features outlandish characters and gadgetry

by a more stealthy approach, or indeed a combination of the two.

The sophisticated AI system no doubt contributes to this dynamic, and other characters in the game respond to 11 stimuli, including footprints, combat sounds and dead bodies. The exact nature of the response differs from character to character, some being more suspicious than others. Another interesting feature is the degree of co-operation between Archer's enemies. Monolith promises that attacks by groups of opponents will be concerted, with elements capable of adopting a defensive stance and laying down covering fire while others run off to get help. If Archer hides, enemies will fan out in a coordinated search. Civilians also respond to the player's actions. They will flee from firefights, but if approached without a weapon, they may provide helpful hints and clues.

Background music also provides the player with some useful warnings of impending danger. The Direct Music API, elucidated by Seamus Blackley at E3 with regard to X-Box, will enable a dynamic soundtrack that responds to what's going on in the game. While *NOLF*'s approach towards ingame audio provides an indication of things to come on X-Box, it is to be assumed that the game's story-driven structure is perhaps an indication of what to expect from the team working on *Aliens vs Predator*.







Sharks

The confined surroundings of a sunken ship provide the backdrop for one of the missions in *No One Lives Forever*. During the mission, Agent Archer has no choice but to traverse a chamber populated by a number of deadly sharks. While there is plenty of flotsam and jetsam to help cover her tracks, it's advisable, in the interests of preventing a swift demise, not to get too close to the poweful jaws of snapping fish. And, though Archer has a harpoon gun to defend herself, she doesn't have quite enough ammunition to take out all the sharks.



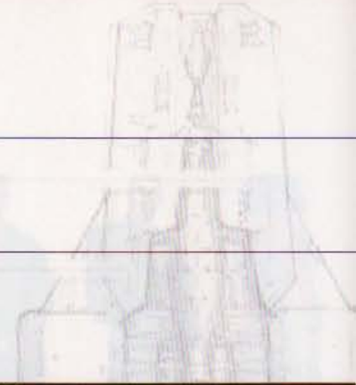








The LithTech engine can cope equally well with both indoor and outdoor scenes, allowing free reign when it comes to designing levels – with inspiring results



Star Trek: Invasion!

Straightforward violence is introduced to the 'Star Trek' videogames canon as Warthog shuns strategy-based gaming in favour of a freewheeling space-based shoot 'em up











Some levels take place over bitmapped planet surfaces. Warthog ditched plans to have a scene with ships flying close over a planet rotating towards the player as it was deemed 'too cheesy'

Nearing completion at Mancunian developer Warthog, *Star Trek: Invasion!* looks set to break new ground for the games franchise. The first 'Star Trek' licence for the PlayStation tears away from its PC brethren's tradition of ponderous (and almost universally terrible) strategy-based gaming and moves into the instinctive arena of space combat. The almost pathologically American series bases its philosophy on peaceful conflict resolution, hardly the premise for an exhilarating shoot 'em up. However, after extensive input to make sure the game fits smoothly into the almost fascistically coherent 'Star Trek' universe, Paramount has approved a plot based around a new type of fighter craft.

The Valkyrie class of strike ship was created to counter a threat by 'The Next Generation' cube-based baddies, the Borg. Now the Borg appear to be heading straight for Earth, and, commanded by Picard and the appropriately aggressive Worf, the player takes the role of a rookie pilot in the Valkyrie squadron heading for a face off. Twenty-plus missions, with objectives predominantly based on the destruction of opponents, incorporate appropriate sub-plots and impressive FMV sequences. Vocally, *Invasion* meets requirements too, with 'The Next Generation' actors Patrick Stewart and Michael Dorn reprising their roles in the series.

The in-game interface also fits the bill, built from the same orange and purple curves that adorn the Enterprise's computer panelling. It all adds to a universe consistency already established in the plot, and reinforced with the ship and environment design. The fighting takes you through open space arenas, with massive enemy ships and 3D planetary systems the backdrops. Graphically, *Invasion* features shadows mapped in realtime on the planets that rotate gently beneath you, and photon torpedoes sparkle against the deep black before exploding.

Control of your tightly manoeuvrable

Invasion *innovates with its use of multiplayer, present in a splitscreen co-operative play, as well as a holodeck-based deathmatch*

Format: **PlayStation**
Publisher: **Activision**
Developer: **Warthog**
Origin: **UK**
Release: **September**

fighter is intuitive but offers an extended range of operations for the experienced pilot. Double-taps strafe, while pressing two shoulder buttons simultaneously sends your ship into one of three evasive action patterns. Directional movement can be oversensitive, and the lack of any sort of visual indicator means your own speed is difficult to judge, but the beautifully simple targeting system means the combat rarely suffers for it.

Targeting an opponent is achieved by pressing the triangle button; holding it will 'lock' you onto the ship, effectively automatically steering you in a persistent tailgating path. This leaves you free to aim your lasers at the target box, a light blue square on your head-up display predicting the future position of the enemy. Locking, with its restricted freedom of manoeuvre and easier gaming experience, was crafted by Warthog for the younger player. Avoiding using it offers quicker, far more stylish enemy destruction.

As expected for games cut from the space combat cloth, the default thirdperson view can be shifted to an in-cockpit perspective. However, *Invasion* innovates with its use of multiplayer, present in the form of splitscreen co-operative play over the course of five missions, as well as a holodeck-based deathmatch. Thankfully, the game also steers players away from the energy-management systems that have slowed the pace of others in its genre, preferring to direct the complex mechanics itself and to leave the player free to concentrate on weapon selection and use.

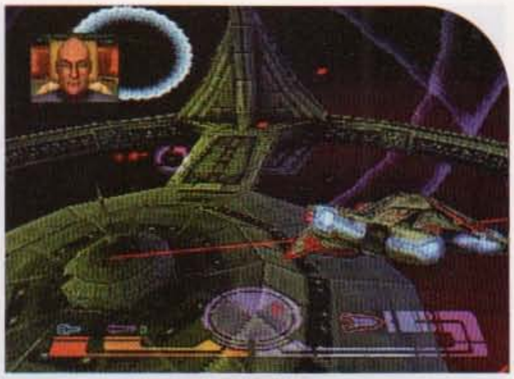
The arsenal of weapons at your disposal is varied, incorporating several types of laser, tractor beams, mines, gravity bombs, and numerous torpedoes. Selection takes place via a simple menu system called up with the circle button. When targeted, an enemy's health is indicated by a small energy bar, but can also be observed by watching the impact of your attacks. As your chosen weapon strikes your opponent, it's dispersed over the invisible shielding bubble that surrounds them. With the failing of the shields, the dispersal fades from green through yellow to red, before disappearing completely and allowing you to rain fire directly down onto the enemy's hull.

The emphasis on action is refreshing. For so long seen as a licence to print (Federation) money, the 'Star Trek' name has become synonymous with dull, poorly conceived and half-heartedly executed ideas. Loyal Trekkers will doubtless already have *Invasion* on pre-order, but, for once, perhaps the rest of the gaming world will have a reason to buy a 'Star Trek' title as well.





An organic-looking fleet of fighters is woken by starship activity nearby. This being *Invasion*, shooting rather than mediation follows suit.



Flying a small fighter around the huge starships gives a truer idea of scale in the 'Trek' universe. Part of one level takes place inside a Borg vessel





From time to time, Worf's ridged and rendered Klingon face pops up in the top left of the screen to offer advice, encouragement, or to admonish poor performance by the player. His digitised voice is streamed directly from the CD during gameplay



Coherence is Paramount

During the action, those familiar with 'Star Trek' will encounter races and ships recognisable from the series, and many more that have been created by the developer, each having undergone Paramount's approval. Based on the look and feel of the bigger crafts more commonly seen in 'The Next Generation', Warthog submitted around 60 ship designs, and only two were rejected. The plot was reworked and reworded by a 'Star Trek' screenwriter, and the dialogue and music all had to go to Paramount first. *Invasion* now has its very own spot on the 'Star Trek' timeline: stardate 54211.82.

Aiken's Artifact

Format: **PC**
Publisher: **Fox Interactive**
Developer: **Monolith**
Origin: **US**
Release: **Q4 2000**

Monolith invites you to keep your head while all those around you are losing theirs as the world is threatened by psionics – ordinary men with extraordinary abilities





After an acting career that has encompassed such films as 'Johnny Mnemonic' and 'New Jack City', as well as the TV series 'Players', Ice T's finest hour is surely at hand in *Aiken's Artifact*. Providing the voice of lead character Agent Nathaniel Cain required the recital of more than 3,000 lines of dialogue to enrich the singleplayer component of a game that defies easy description.

Combining elements of *Diablo* and *Magic: The Gathering* in a coherently scripted future in which humanity is threatened by the emergence of 'psionics' – ordinary humans with extraordinary abilities – the game benefits from producer Garret Price's experience as a comicbook author, as well as a cast of professional voice actors. Demonstrating the versatility of the LithTech engine (also see p32) the game is viewed from an isometric viewpoint, with a camera that can zoom and rotate to capture the action.

The game is set over 20 levels and features eight bosses that must be overcome in sequence. Cain starts with access to just one of the eight Totems (or schools of psionic abilities), but defeating each boss unlocks access to their particular Totem. Each Totem is made up of a range of talents, which can be cast at a cost to the user's sanity. When a character's reserve of sanity is drained, they become uncontrollable.

Although the oneplayer game is well structured and involving, the real strength of the title lies in its multiplayer incarnation. Deathmatch levels are designed for up to eight players, and initial levels of sanity and health can be determined at the start of the game. Also to be decided at the outset is whether to allow access to the entire roster of talents, or whether players must choose a number for the duration of the game. Another variant starts players off without access to any talents until they come across power-ups during play. The real beauty of the system is the opportunity to combine one or more talents for an effect that is greater than the sum of their parts, which adds a strategic element to the *Diablo*-style hack 'n' slash dynamic. A further level of complexity is added by glyphs, which are talents that can be laid as traps.

In another nod to collectable card games, new talents can be made available without a patch, and indeed several such expansion sets are already in progress, not least to offset the weaker talents of the early bosses. With such a metagame dynamic, it will be interesting to see whether the prohibitive costs of online gaming in Europe will prevent *Aiken's Artifact* from acquiring the devoted Internet community that will ensure its success.







The use of talents is accompanied by a series of striking effects



Cain has recourse to a number of items – represented by icons to the left of the screen – with which to threaten wayward psionics and bring them into line





Totems, talents and bosses

Throughout the course of his travails Cain will have to take part in a bizarre game show, progress through catacombs populated with demons, and infiltrate covert drug laboratories. His efforts are impeded by an exotic roster of bosses. While Cain starts the game with recourse to Pyrotechnic talents, the first boss, – Priscilla Divine – uses the Sun Totem, which affords her a variety of Egyptian magic. Later bosses rely on a number of different of Totems to determine the nature of their defensive abilities, which include a Storm Totem, a Death Totem, a Truth Totem, a Science Totem, a Demonology Totem, and a Las Vegas-style Illusion Totem.

Red

Format: **PlayStation2**
Publisher: **Konami**
Developer: **In-house**
Origin: **Japan**
Release: **2001**

Konami is confident enough in its manga-inspired strategy game, based in an alternative post-WWII Japan, for it to be the first of its genre to appear on PS2

Touted as the first strategy game for PS2, Konami's *Red* has much to do to persuade the initial wave of owners of the new console that this is a title worthy of purchase. Though the game was on display at E3 there was a general feeling that *Red* wouldn't be coming over to these shores. However, Konami seems confident that the lengthy localisation work put into converting the game for western tastes will pay off.

Red mixes elements of turn-based strategy (forces are marshalled and moved on a large-scale map) and realtime battles, once the opposing forces engage one another. Forces range from robot tanks to mech warriors and ground infantry. Konami is making much of the game's ability to both satisfy the intellect and deliver arcade-style sequences which require quick reflexes and quick-fire gunplay.

The action takes place during the aftermath of WWII in an alternate reality. Japan is divided into three distinct territories, and period of Cold War tensions and escalating arms production have led to the stockpiling and invention of devastating mecha technology. The game begins when hostilities can no longer be held in check.

Deploying your forces and organising an offensive strategy is the first objective. The map includes a mix of mountain, valley and swamp terrain, and maximising the potential of your units to suit the land is imperative. Once opponents are met the player can take full control of individual units. Mission directives are also issued, and serve to ensure that clearly defined goals keep the player interested.

Though playable code was available at Konami's recent 'Kick Off' event in Cannes, the copious Japanese text prevented full appreciation of the game's subtleties. Noticeably, however, the transition from troop deployment to firstperson mecha control was handled well. Also in evidence were dashes of RPG elements with the ability to take control of commanders and upgrade stats and abilities. Gaining experience even provides characters with special attacks which can be used during close-range battles.

When two, or sometimes even three forces clash, the realtime elements come into play. Marshalling the units at your disposal becomes a much more pressurised affair. Taking direct control of one mecha tank will mean that others must fend for themselves. How effective and comprehensive the AI is remains to be seen. Hopefully, friendly forces will operate with some surreptitiousness rather than just piling in gung-ho.

A manga-inspired strategy game for PS2 is a bold move by Konami, though many western consumers could well be bemused rather than beguiled.







The mech tanks are particularly impressive, with fluid animation and dynamic lighting effects. A range of units are available and each has markedly different weapons to add complexity







The transition from the battle map to controlling individual units works well. *Red*'s true test, however, will be in the long-haul campaigns. The blend of action and strategy will have to be incredibly well balanced to avoid repetition



When weapons are fired cut-scenes add to the drama by humanising tank-to-tank confrontations

An injection of humanity

The RPG elements in *Red* add a human side to the gameplay which may soften the methodical strategy. Being able to readily identify with the individual units and use experience gained distinguishes the title from many RTS clones.

Wipeout Fusion

Format: **PlayStation2**
Publisher: **SCEE**
Developer: **In-house (Studio Liverpool)**
Origin: **UK**
Release: **Spring 2001**

While the next instalment of the phenomenally **popular futuristic racer has made** progress since its E3 showing, much about **the title still remains under wraps**







As with the rest of the series, the developer has hinted that most of the past favourite weapons should make it into the final version, while some of the less popular have been dropped to make way for a new range. Notice the extra level of detail 128bit grunt has allowed the team to implement into the tracks, such as structural cracks



This month's few new screenshots of SCEE's next-generation *Wipeout* title as the European PS2 launch approaches seem to indicate that the game is coming along at a reasonable rate since its E3 appearance, when running video of tracks was shown to a crowd disappointed not to see live action. Eight characters are currently known to exist, though more may make the final product. Ship design is more adventurous than in previous *Wipeouts*, with many of the new machines boasting a smoother, more organic design. Furthermore, some of the futuristic vehicles are far larger than in any previous instalment – how this translates in terms of gameplay implications such as circuit width should soon become apparent.

Track layout, too, is expected to benefit from a more daring approach, with more splits and alternate routes introduced along the lengthy circuits. While the more audacious swirling raceways depicted in the team's concept designs have yet to make an appearance in polygonal form, expect myriad gravity-defying moments to test your futuristic racing reflexes.

Edge looks forward to learning more about how the Studio Liverpool team intends to take the popular series forward into the age of 128bit technology.

Gran Turismo 2000

Format: **PlayStation2**
Publisher: **SCEI**
Developer: **Polyphony Digital**
Origin: **Japan**
Release: **Q4 2000**

Polyphony Digital is being less than forthcoming with details on its *GT2* follow-up, but with the car dynamics already in place, the title is evidently nearing completion

Finally, you can get a glimpse of how *GT2000* was looking back in May when Kazunori Yamauchi and team showed up at E3 with a build featuring a gloomy Seattle track and a sunny Laguna Seca raceway. Other than higher-polygon-count versions of *GT2*'s models, **Edge** has still to come across new vehicles in *GT2000*, though doubtless most are likely to remain garaged until release time draws frighteningly near.

So too are any additions to gameplay. Polyphony has already admitted that *GT2000* isn't a true sequel, but rather a 128bit update of the admired franchise, and that the real improvements are to be implemented in *GT3*. Knowing the team, **Edge** would find it unfathomable if a couple of new elements failed to worm their way into the code to spice up what could otherwise be cynically viewed as an easy way to get the mainstream market excited about a game that may fail to live up to (possibly unrealistic) expectations.

Still, with the team now focusing on the title's visual aspect and setting up track days for sound recording purposes (the car dynamics were sorted out back in May), expect the package to improve still further as SCE patiently awaits what it must regard as one of its saviour titles.





Lotus Elises, Toyota Celicas, Subaru Imprezas, Dodge Vipers, Lancia Stratos, Honda S2000s are all well and good, but where are the new models? Ferrari is pretty much a no-go (although **Edge** has politely asked Acclaim to 'lend' Polyphony one or two models). And licensing aside, realtime damage would make all the difference





ESPN International Track & Field

Format: **PlayStation2**
Publisher: **Konami**
Developer: **In-house**
Origin: **Japan**
Release: **2001**

Next generation or not, Konami proves that button bashing will never fail to win the affection of gamers with a PlayStation2 update of its classic multiplayer athletics title

Konami's *International Track & Field* defined the button-bashing sports game for the PlayStation era. Fiendishly addictive, and often generating more competition than the real thing, it left any potential successor with a lot to feel insecure about.

Clearly, Konami has not messed too much with a winning formula – the basic control system of two-button key presses followed by hitting an action key remains. However, some sports – such as the strangely compelling rhythmic gymnastics – require a subtly different approach. Direction arrows are represented on the screen and must be followed BeMani-style to twirl a baton or throw a ribbon.

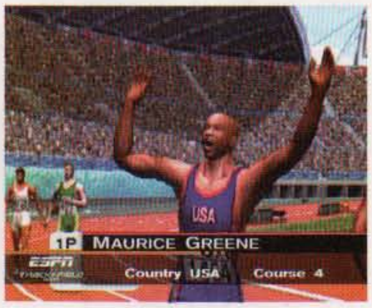
Graphics are much improved, and the motion and animations are excellent. Not so impressive is the fact that the motion-capture routines are the same for each athlete, and quickly become repetitive. It would have been worth the effort to vary the formulas for added effect.

More than a dozen disciplines are promised for the final version of *ESPN International Track & Field*, including weightlifting (always a popular event in the original game), skeet shooting and the long jump. Those who feel particularly keen can even use the *Dance Dance Revolution* mat for the gymnastics events.









Maurice Greene (right) was just one of the athletes called upon by Konami to provide the motion-capture data. Although the standard alternate button-pressing frenzy returns, the developer has attempted to give every event a subtle twist on the formula. The swimming discipline (above and left) is particularly impressive, with water rippling effects adding an extra touch of credibility

ISS

Format: **PlayStation2**
Publisher: **Konami**
Developer: **In-house**
Origin: **Japan**
Release: **October 27**

While devotees of the talented underdog in the football genre may be disappointed, Konami should have the only football game on the shelves at the PS2 Euro launch









Though still very playable in its '70 per cent complete' form *ISS* for PlayStation2 is proving less than revolutionary. Even evolutionary would be a generous epithet. A popular and solid football title at launch will, however, sell in good numbers and Konami is banking on *ISS* being the only football game available on October 26

Rumours have suggested that Konami executives were divided on whether to showcase the company's popular football title at its 'Kick Off' event. The playable demo was greeted with a mixture of mild disdain and open disappointment by the gathering of videogame journalists at Cannes.

The title still needs work before its launch, though some have grumbled that '70 per cent complete' just means the AI will be tweaked. It's not that the game plays particularly poorly, more that the PS2 *ISS* has remained static in terms of its presentation and gameplay mechanics. This is the N64 version in crisper clothing.

Cut-scenes and the motion-capture of players celebrating goals are predictably more lifelike, but add very little to the actual game – whereas crowds and stadium scenery are poorly represented, and fail to enhance the atmosphere.

Though the *ISS* brand has never shifted the same number of units as its main rival – EA's FIFA-endorsed games – more discerning gamers prefer the former for its fluid gameplay and strategical depth. Those already owning a copy of an *ISS* game may feel slightly aggrieved at the lack of invention and ambition to further the brand's excellent reputation in this instalment.



Mr Driller 2

Format: **Coin-op**
Publisher: **Namco**
Developer: **In-house**
Origin: **Japan**
Release: **Out now**

Namco's smash-hit manic miner returns, this time with a young German fräulein in tow, as players get the opportunity to indulge in a spot of underground twoplayer action

Not content with drilling his way through 10,000 arcade unit sales – an impressive figure in a depressed market – *Mr Driller* returns. India, America, and Egypt are the backdrops to a new set of levels for his familiar battle against oxygen deprivation and falling rock, this time with an accomplice. He's joined by the Germanic Miss Anna Hottenmaier, and while the prospect of romance can never be discounted, the future of the pint-sized heroes looks set to be predominantly based around colourful blocks and spinning drills.

There are no revolutionary changes to the gameplay that proved so addictive in the original; the same frantic puzzling is here, the same gaudiness and gameplay remains. But, importantly, the inclusion of a second character introduces a twoplayer mode – something severely lacking in the former game. This follows the pattern of the oneplayer game, with the addition of attack blocks that disorientate by flipping or rotatating the opponent's screen. Though a great amount of the code remains unaltered from the first instalment (the India mode is identical to that of the first *Mr Driller*), it's difficult to castigate Namco for taking an excellent game and attempting to remove its minor imperfections, which it seems to have succeeded in doing here.









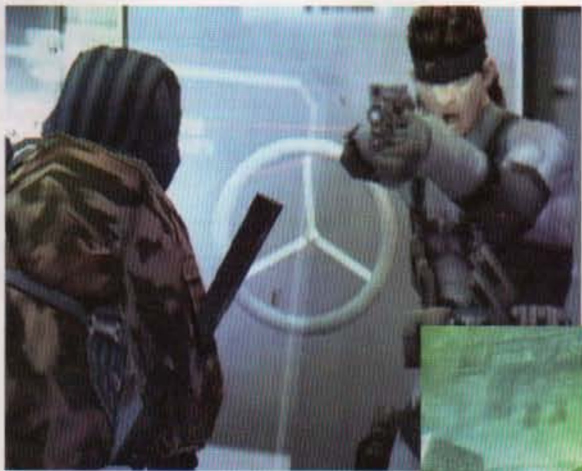
Screen layout is in the traditional manner of puzzle games, with a sidebar informing you of your progress, score, and lives left. As in *Mr Driller 1*, air must be replenished by reaching oxygen cylinders. The difficulty of the stage is indicated by its depth

Metal Gear Solid 2

Format: **PlayStation2**
Publisher: **Konami**
Developer: **In-house (KCEJ West)**
Origin: **Japan**
Release: **Q4 2001**

The videogame world's most anticipated title takes a few more steps towards finished status as its creator invites members of the press to view his crowning glory in Cannes







Snake arrives in the gameworld in a distinctly Terminator-esque manner (right), providing further evidence of Kojima-san's love of movies (and his willingness to borrow from them). Action sequences such as this (left) are far from subtle – Snake simply stands there and pummels enemies with gunfire. Maybe this is one element, like so many others, that is set to be made significantly more elaborate



At a private screening in Cannes Konami recently showcased its *MGS2* trailer to the press for only the second time. In the more intimate surroundings of the Majestic Hotel's conference room delegates were invited to question Hideo Kojima about the game and were even treated to a new short section of film.

The new footage showed Snake in typically dramatic fashion negotiating his way down a corridor and then firing a burst of bullets into several large windows with an automatic weapon. Unlike the first game Snake's presence will be noted by obvious signs of disturbance such as shards of glass and blood stains – even shadows will alert guards.

Given that a little more was revealed the trailer received generous applause and set the atmosphere for the Q&A session with Hideo Kojima. Among other new slivers of information was the news that Metal Gear Ray would be unleashed upon New York with sequences taking place at the Statue of Liberty and the Empire State Building. The new, improved mech can also take to the water, generating speculation that parts of the game may take place undersea. Kojima-san, however, would neither confirm nor deny this aspect.

Whatever the case, that late-2001 release date still seems painfully far off.

Hundred Swords

Format: **Dreamcast, coin-op**
Publisher: **Sega**
Developer: **Smile Bit**
Origin: **Japan**
Release: **Out now (Japan) TBC (UK)**

Japanese gamers are introduced to realtime strategy with a title bound for Dreamcast and arcades, the latter featuring a fibre-optic cable link capability











Sega has had some tough decisions to make in bringing a RTS game to the arcade. Apart from the uncertain response from gamers (it is the first of its type in Japan), *Hundred Swords* breaks the usual three-minute rule of an arcade challenge. Dreamcast players will be offered many more scenarios, and may even have the opportunity of going head to head against arcade opponents

Over the last few years, *Command & Conquer* clones have developed their own acronym and have gone on to dominate a large share of the PC market. Japanese gamers, however, have yet to experience the joys of stockpiling arms and generating technologies in a realtime universe. In an atypical reversal, Sega has taken a winning formula from the west and adapted it for Japanese videogame consumers.

Hundred Swords delivers all the elements that RTS devotees crave: unit creation and distribution, invention of advanced technologies, and the usual resource-management elements mixed with explosive tactical action. The player chooses from eight leader types to deliver a variety of tactical styles. Some utilise magic more effectively, while others produce foot soldiers speedily. Played with up to four players, the game should offer a more intense and competitive experience than similar titles. Interestingly, the arcade version can be played via fibre optic cables between Sega's Joypolis and GIGO arcade centres. Plans to combine Dreamcast and arcade play is also afoot, although details of the logistics are currently unclear. The Dreamcast version also boasts 30 scenarios, compared to the three of the coin-op version.

Silpheed 2

Format: **PlayStation2**
Publisher: **Capcom**
Developer: **Game Arts**
Origin: **Japan**
Release: **September**

A no-nonsense shooter is emerging from the still-smouldering remains of the Mega CD to bring its brand of all-guns-blazing interstellar combat to PlayStation2

The *Silpheed* name offered a glimpse of acceptability among the wreckage of the Mega CD, and this new incarnation on PS2 represents another chance to witness the pure shoot 'em up realtime 3D action it offers – albeit in updated form, naturally. Nine different weapons, waves of enemies, unlimited fire and inadequate shielding – regardless of its next-gen status, anyone who has played something from this genre on any platform will find themselves in familiar territory here.

The break from tradition comes with the weapon control. Two separate buttons control the firing of your left and right wings, and a third fires both sides at once. Different types of weaponry can be equipped on each side, meaning the player has the opportunity to devise devastating combinations of firepower. Elsewhere, *Silpheed* follows typical shooter design. The appearance of 'Emergency' during each level heralds the inevitable bosses, and 'Refuel' signals a chance to replenish your five-bar shield. Billed as a remix of its previous Sega outing, the simple structure and destroy-everything policy means *Silpheed* is unlikely to astound with its originality, but the frenetic action could still find favour with nostalgia freaks.









Bosses and level structure are reminiscent of the disappointing *Ray Crisis*, and, indeed, most vertical scrollers before it. Hopefully, the power of PlayStation2 will facilitate a faster, more fluid, and much more attractive gaming experience

Mario Story

Format: **Nintendo 64**
Publisher: **Nintendo**
Developer: **In-house**
Origin: **Japan**
Release: **August 11**

Mario returns to the Nintendo 64 in an RPG which is based on the quest to recover a stolen 'fairy wand' and incorporates 2D effects with a 3D twist that fans will recognise









Mario will be able to perform multiple actions and the onscreen commands (left) show the complexity of the attack to be performed. Familiar enemies such as the Koopa Troopas and Bob-ombs (above) return, although Nintendo has promised many new adversaries. The title seems likely to be Mario's very last outing on the N64, and fans will be hoping that it captures some of the old magic

Previously known as *Mario RPG 2*, Nintendo has decided to alter the title in keeping with past successes such as *Yoshi's Story*. The plot, which involves the theft of a fairy wand, is levelled very much at a younger audience, suggesting that the challenge may be equally as gentle.

Nintendo insiders have been calling the hero 'paper Mario', an allusion to the inventive stylistic effect produced throughout the game. First used in the menus in *Yoshi's Story*, the 2D objects in the game are animated using various 3D effects. Such clever visual mixing reminds gamers both of past glories, such as *Super Mario World*, but also acknowledges the impact of Nintendo's first fully 3D outing.

The battle system has also been updated and requires the use the analogue stick and pressing either the A or B button depending on the enemy encountered. Bosses will be confronted in traditional style, although Nintendo is promising that they will be original in many ways. The narrative can be diverted at key points after playing mini-games, and the player can even control princess Peach.

A slew of new characters and a power-up system controlled by badges should keep younger and die-hard Mario fans happy until his next excursion, in 128bit form.

Incredible Crisis

Format: **PlayStation**
Publisher: **Titus**
Developer: **Polygon Magic Inc**
Origin: **Japan**
Release: **September**

Do you remember when Japanese-produced games offering distinctly, madly original elements wouldn't get within a sniff of being released in the west? How times change...

A top ten hit in Japan, *Incredible Crisis* is a collection of mini-games, each one evoking nothing more complicated than a Game&Watch title. But where Konami's similarly-styled *Bishi Bashi Special* made no pretence of its predominantly multiplayer appeal, *Incredible Crisis* is a oneplayer game, and spins a fittingly linking tale between its sections. Taneo is a balding, stressed businessman on his way home to his grandma's birthday party. His journey kicks off the story, but the rest of his family – each suffering their own incredible crises – participate on the way through the 20-plus levels.

Aside from its simplicity, the appeal of *Incredible Crisis* is based around cartoon slapstick and allusions to numerous films, some more pointed than others. The names of the levels, seen as videocassettes in the level selection screen, lead the way: Snowboarding with Wolves, Kiss of Spiderman, and Titanic Away are just three of the barely masked references. They come visually, too, with Taneo fleeing from an Indy Jones-style rolling stone boulder, then blasting through a window on the crest of an explosion like a karaoke 'Die Hard'. While *Incredible Crisis* may be big in Japan, whether its success will translate better than its humour remains to be seen.









Having grooved his way through an impromptu office dance-off and escaped a rolling boulder, Taneo finds himself answering multiple choice questions in the back of an ambulance. Success there means a visit to the suicidal trolley riding level, 'Let's Go By Stretcher'

Desperados

Format: **PC**
Publisher: **Infogrames**
Developer: **Spellbound**
Origin: **Germany**
Release: **March 2001**

The spaghetti western comes to PC in a game featuring gunslingers intent on hunting bandit leader El Diablo through the New Mexico badlands during the American Civil War

In contrast to the quite bewildering number of videogames set in hackneyed sci-fi/fantasy environments, relatively few developers have seen fit to explore the dramatic potential of the wild west. *Desperados* – an adventure strategy game set in New Mexico during the American Civil War – goes some way towards remedying this state of affairs.

The player controls a band of gunslingers over 24 missions, which take in a representative selection of western locales such as pueblos, ghost towns, saloons, steamers and gold mines. The six heroes each have their own specialisation, with John Cooper taking the role of leader and most effective marksman. His supporting cast includes an explosives expert, a female poker player, and an oriental character with a pet monkey. In their quest to find enigmatic bandit leader El Diablo they will have to contend with enemies whose behaviour is determined by traits such as resistance to alcohol and sense of duty.

Whether or not the genre has sufficient immediate appeal, *Desperados* gets gameplay mileage out of its setting, with missions requiring shoot-outs, train attacks, and character actions encompassing powder keg detonations, knife throwing, and saddling and riding horses.



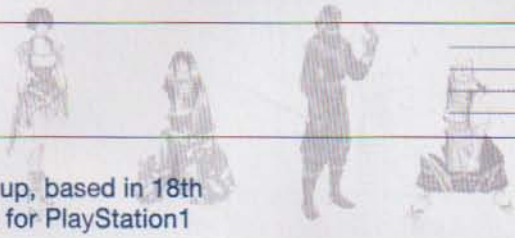






The crisp, isometric appearance of *Desperados* appears to owe much to *Commandos*, and while gameplay is also reminiscent of that title, the unique environment threatens to lend a more innovative approach to gameplay. Six tutorial missions should provide players with a gentle introduction to the threat posed by rattlesnakes, bandits, and the dangers of getting inebriated at the local saloon

7 Blades



Format: **PlayStation**
Publisher: **Konami**
Developer: **In-house (KCEJE)**
Origin: **Japan**
Release: **Q4 2000**

Swordplay comes to PS2 courtesy of Konami, but this hack 'em up, based in 18th century Japan, is still beset with problems after being scheduled for PlayStation1









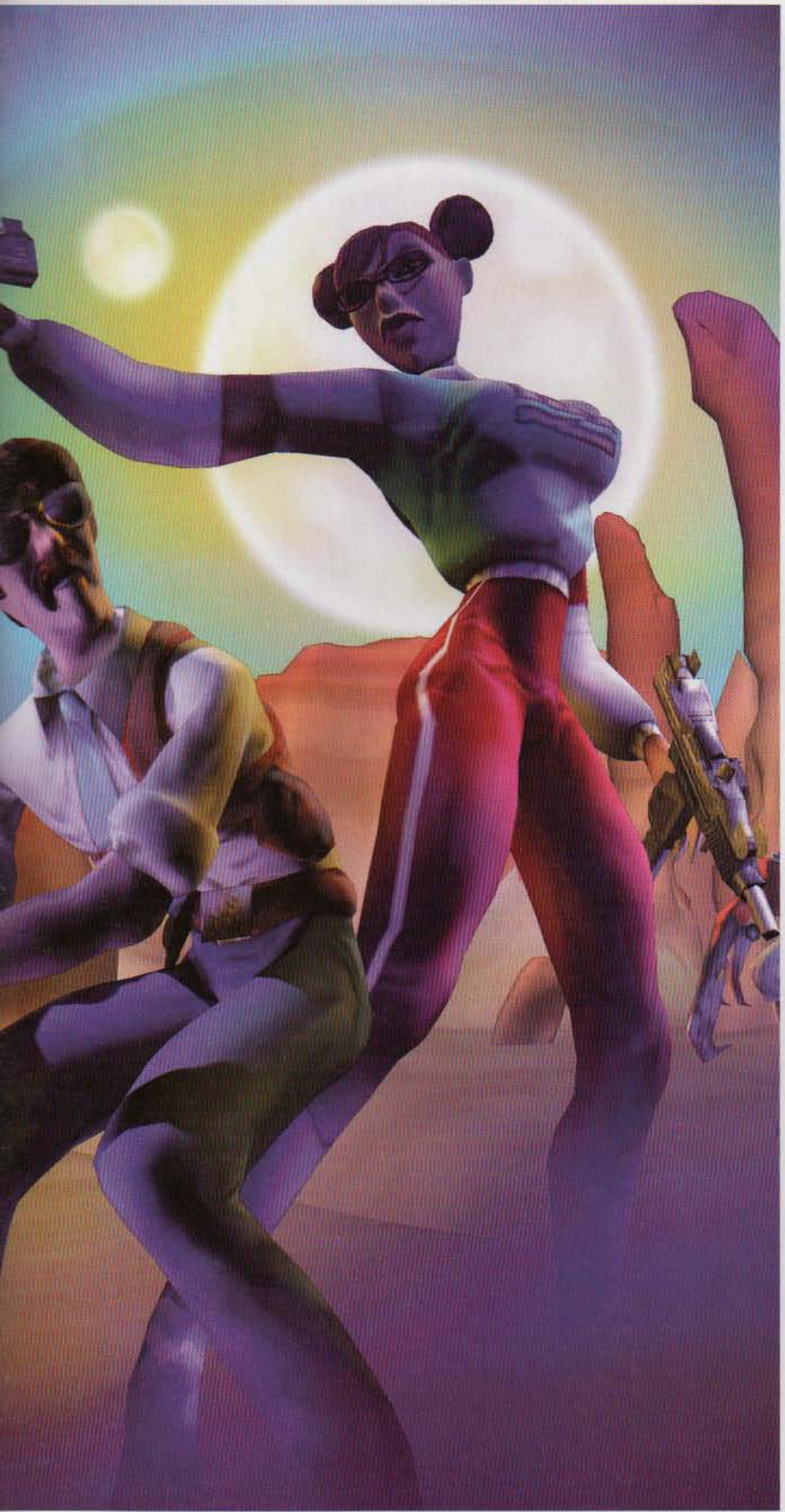
Happily, *7 Blades* will not be a launch title. The code played by **Edge** displayed many inconsistencies and much work still needs to be implemented. The size of the player's character (above) may prove to be a drawback, covering a large part of the playing area and obscuring enemies at critical times. The fundamentals of carving up several adversaries in one sweep does, however, prove satisfying

Konami's *7 Blades* was originally conceived two years ago for the PlayStation, and looks like a game which has undergone transitional difficulties, as it has now been scheduled to appear on PlayStation2. Though Konami says the game is only 40 per cent complete, the code is playable and provides a good indication of what to expect in the completed version.

Two characters are selectable and each must play through their own adventure set in 18th century Japan. Landscapes and scenery, however, do vary and more modern items and architecture occasionally appear. As the title suggests, the two heroes can make use of a selection of gruesome weapons. Typically the male is stronger and specialises in heavier sword weapons, while the female is more agile and prefers missile weapons. Both scenarios differ markedly, offering a longer term challenge.

Though looking decidedly rough around the edges, *7 Blades* plays like a decent enough hack 'em up. Multiple enemies can be dispatched with a single sweep of the sword, and Konami is making much of the game's ability to display 20 enemies simultaneously onscreen. Despite the promise previously showed, however, *7 Blades* still lacks entire tins full of polish.





TimeSplitters

If you're looking for the next *GoldenEye* or *Perfect Dark*, you had better look elsewhere – Free Radical Design's FPS is an entirely different prospect altogether. Edge cuts into the developer's busy schedule to find out more about what appears to be the most exciting PlayStation2 launch title

With little regard for time and space, the fiendish TimeSplitters race has – for as long as anyone cares to remember – manipulated humanity's fate, encouraging fear, greed and conflict with the aid of cursed crystal shards of pure evil. Their interest in Earth has been reignited by a disparate group of heroic personalities battling their villainous counterparts in a period spanning a century (1935-2035), and the TimeSplitters have again employed their time/space continuum-disrupting skills in order to get in on the action. As is so often the case, the fate of humanity is now in your joypad-hugging hands.

In oneplayer mode, the game is divided into nine levels which propel you from the tomb-raiding antics of a '30s adventurer through to the robotic-reliance of the 21st century. There is no main character. There is no evolving narrative. And – believe it or not – there are no cut scenes.

Responsibility for this fresh take on the genre lies with Nottingham-based outfit Free Radical Design. Founded last year by five former members of the Rare *GoldenEye*/*Perfect Dark*

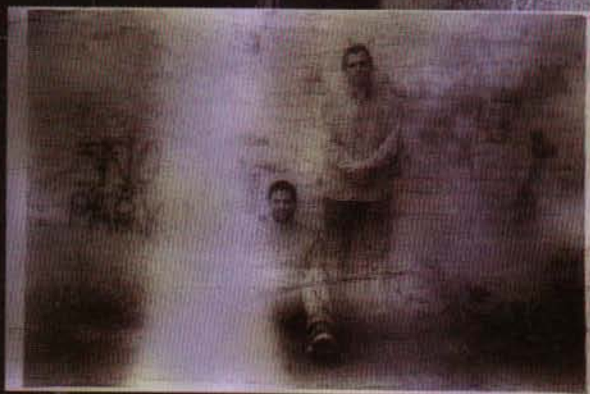


Format: **PlayStation2**
Publisher: **Eidos**
Developer: **Free Radical Design**
Release: **October 26**



Photography: Martin Thompson

"I think we wanted to get back to something that was really instantaneous. We wanted to do something bang in your face – it just gets you back to the old arcade-style thing of having a lot of fun very quickly"





David Doak
head of design



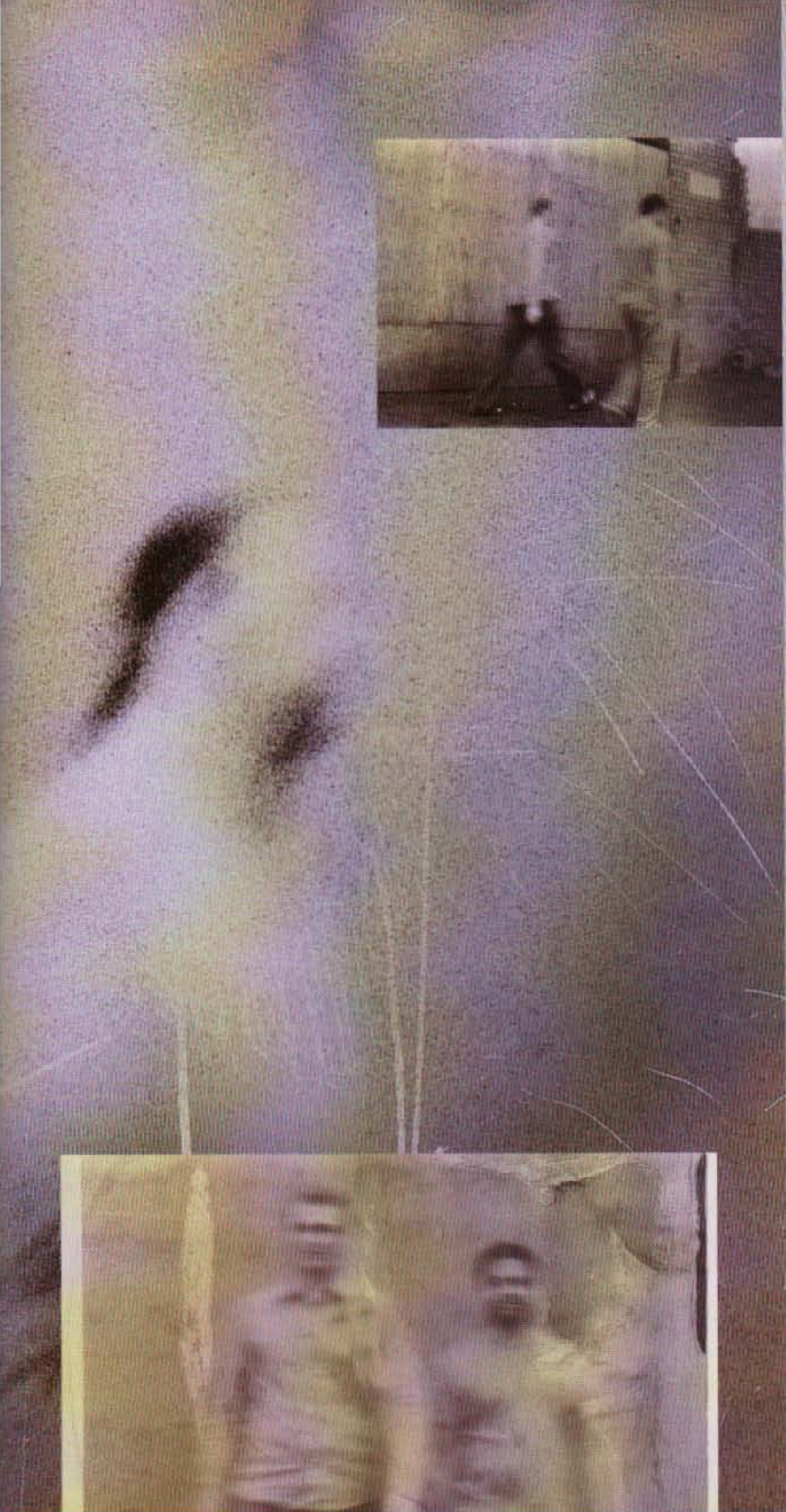
Steve Ellis
head of software



Karl Hilton
head of art



Lee Ray
artist



family. When **Edge** first met up with the quintet – soon after they had taken the decision to go it alone – the whole team (including equipment) fitted in a generously proportioned room. A relocation, another 11 members and a seemingly endless supply of PS2 dev kits later, **Edge** is again shaking hands with founding members **David Doak**, **Steve Ellis** and **Karl Hilton**.

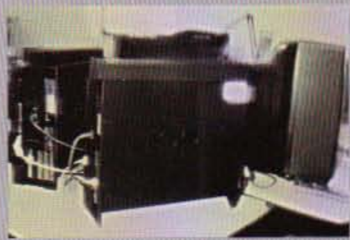
Games for gamers

"To make the sort of game that if I was buying a new console I would want to have on it," Doak responds to **Edge**'s initial queries regarding the project's underlying concept.

"I think we wanted to get back to something that was really instantaneous," adds Hilton. "We wanted to do something really bang in your face – it just goes back to the old arcade-style thing of having a lot of fun very quickly."

TimeSplitters certainly occupies arcade territory, harking back to the days when *Doom* ruled the gaming roost with corridors and rooms offering dozens of demonic opponents just begging to be sent straight back to Hell. While the polygonal revolution put an end to a developer's dream of matching id Software's fragfest for enemy counts, it is only as the next generation of hardware starts to hit its stride that coders are beginning to implement respectable numbers of CPU characters (though, to be fair, **Edge** has counted up to eight adversaries while playing *Perfect Dark* on the ageing Nintendo 64).

The main thrust of FRD's game is to maintain a high level of action at all times, and the most obvious way of achieving this is to ensure the screen is constantly populated with bad guys. As a result, while the oneplayer missions have an objective to them – locate and retrieve an item or a attempt a simple escape – the finesse and delicacy evident in most of today's stealth-based firstperson





Wherever you stand, you're never more than an arm's length from a PS2 dev kit. Norgate's audio station takes the most imposing office placing



Graeme Norgate music and sound design
Brad Warren artist
James Cunliffe lead animator
Hasit Zala lead programmer





Adversaries and weapons alter in keeping with the time zone you find yourself playing in













The area perhaps still needing the most work is the AI. This usually gets massively compromised as a result of time constraints and hardware limitations, but FRD is confident that foundations are already in place. With *GoldenEye*, all of the AI was directed against the player, whereas in a multiplayer setting there needs to be consistency in the way the CPU treats other NPCs. "The thing with AI is that people attribute so much to it that they see what they want to see when they play. The idea is just fooling most of the people most of the time. As long as people enjoy it and think they're there and that they're getting caught out by things, then they'll think it's a challenge," says Karl Hilton





The default control system uses both Dual Shock 2 analogue sticks, but expect a comprehensive list of alternative options

romps is nowhere to be seen. This is beautifully demonstrated as Doak, within seconds of starting one of the more modern levels, begins spraying a vast, multi-levelled room full of TimeSplitting scum with an infeasible number of bullets from his character's compact mini-gun. It's far from subtle, yet instantly gratifying.

Change of plan

But it's also very different from the game FRD talked about developing when it was interviewed in **E**72. Back then the team seemed intent on revolutionising the FPS genre, with what sounded like a hugely ambitious title. "As a start-up company you want to arrive with a good product," explains Hilton, "and if you go into one of these huge projects with incredibly complex goals, whether you achieve it or not – as we've seen with other start-ups – is debatable, and what we want to do is get a game out there, hopefully for launch, that is good and that people really enjoy."

"It has now been three years since *GoldenEye* and we wanted to be in a position to say 'Well, look, we're re-establishing our pedigree as developers and people making games'," Doak continues. "In some ways [*TimeSplitters* is] a simpler game, but in other ways there are other things about it which are very challenging."

Not least from a technical point of view. Every time **Edge** studies the screen, everything hammers along at the 60fps mark – and it does so regardless of the number of brilliantly animated and unusually eccentric characters displayed. Add in some reasonably complex architecture swathed in delightful textures, split the screen in four, and it's an undeniably stirring affair. Who says PS2 programming is difficult?

"It's a lot of fun," laughs Ellis, who cites working on the Nintendo 64 as a great learning experience. "It brings back memories of the Amiga and stuff like that. I think it's probably quite different for people who've been doing PC games, but I've really enjoyed it. You have all these things going on at once, and you have to keep them all busy if you want to get any decent performance out of them."

While the majority of PS2 developers **Edge** has spoken to recently can't wait to divulge the insurmountable problems they've been having, Ellis' only area of criticism extends to the CPU, which he finds 'a little bit slow'. But then the development of *TimeSplitters* has been meticulously planned so that as few surprises as possible would turn up and potentially play havoc with release dates. No one is startled by the frame rate holding up, regardless of the onscreen action. After all, it wasn't simply a case of throwing the fourplayer mode in at the last minute and finding that everything suddenly ground to a halt.

"We sat down, looked at the specs and said, 'This is how many polygons we're going to use for this, this is how much texture memory we've got'. We split it all up and made a game based around that, and it works," reveals Ellis. "A lot of people have gone for really high-end stuff and realised it's actually going to take a long time to do that."

In another move against accepted convention, *TimeSplitters* isn't predominately about oneplayer gaming. From the start, the focus has been on the multiplayer option, though before you start looking into sourcing thirdparty PS2 modems, FRD's take on multiplaying doesn't match those of your average PC gamer.

Social splitscreen

"The best fun I think I've ever had playing multiplayer games was playing *Bomberman*," admits Doak. "And it wasn't playing *Bomberman* over the Net. The whole social aspect of [Internet gaming] is always conspicuously absent, and unless you go somewhere like one of these LAN party places where everyone can sit around and shout at people, you don't get the immediacy of insulting people or shouting or mucking around," he explains.

TimeSplitters' multiplayer action has been designed in the console 'gather round a screen' sense. Having spent most of the day trying the near-finished product in just that way, it's

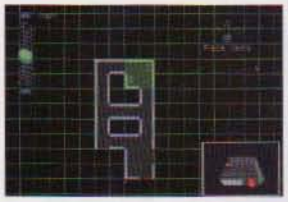
Character building



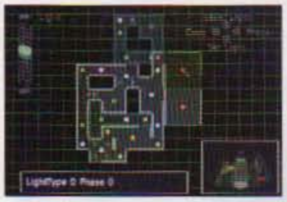


The variety of characters and intriguing backgrounds in *TimeSplitters* is striking. "We have an oustanding character artist who has got fantastic imagination, and we sat him down and went through some possible scenarios. He started to come back with sketch books full of characters, and we looked at the characters and we talked about the backgrounds and he just started matching them up – that was how it was built up," says head artist **Karl Hilton** "[We think] the best way to get the best out of people is to let them be as free as possible. That's why we don't have a games designer, specifically – if you have someone with a set idea of how it's going to be, then no one is interested in working on it. So here we try to tell everyone, 'This is your area, it has to keep within rough constraints, but other than do what you want', and people come up with a lot more interesting stuff. Both background and characters are not any one person's golden vision."

PS2 FPS DIY











One of the most impressive features currently functioning in *TimeSplitters* is its level editor. As with many other elements of the game, this still has some finalising to undergo, but already it's shaping up to be one of the best examples of its type, if only for its ease of use. A choice of 16 chamber pieces, which can be orientated in any manner, allows for some complex map building, and includes all fundamental gameplay aspects such as weapon and character placement. Massive multi-levelled rooms are possible, though FRD may need to restrict some of the more ambitious designs should playability problems occur. Required memory card space will be minimal.

heartening to see that the team hasn't lost its touch when it comes to splitscreen battling. As you'd expect from the people that were involved in bringing you *GoldenEye*, the options list is going to be substantial.

Opening the toy box

"If you make a game flexible, there's a lot more replay value – people like to come back to it again and again and they make up their own games," says Hilton. "So the idea with *TimeSplitters* is to make it as much of a toy box as possible, because everyone has always got ideas of how they would make their game, and then they get slightly disappointed when the game you've provided them with isn't quite what they wanted, so we kept it as flexible and as open as possible."

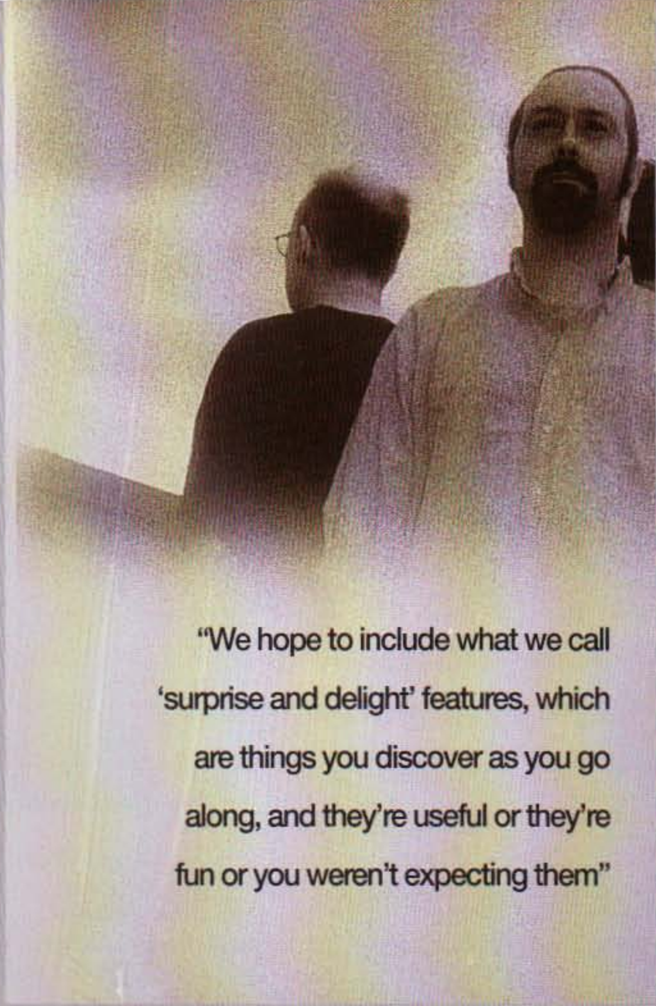
This is a goal that the team has certainly achieved. In another aggressive U-turn on current trends, very little in *TimeSplitters* is locked or hidden from the start. Although still to be finalised, it's likely that as many as six of the nine oneplayer levels may be accessible the moment the game has finished its loading routine. Furthermore, don't expect the usual amount of bonus items.

"It's come from the fact that it's an arcade-action kind of thing, and also the toy box thing – the tools," Doak explains. "If you give someone a toy box, then you should give them access to all the bits in it. You can add hours of gameplay by taking people through banal things: finish the game, now you have to do this to get this."

"We hope [to include] what we call 'surprise and delight features'," reveals Hilton, "which are things that you discover as you go along, and they're useful or they're fun or you weren't expecting them. But there's a level at which it becomes a routine kind of thing, and you don't want to get into that kind of game: you've got to do this and do this and then you get this. It becomes a goal in itself.

"If you're expecting a present, it's never as much fun as when you get one by surprise, and these days everyone has come to expect it so you have to try and surprise people. And you can do that in much smaller ways that are actually more satisfying in terms of the gameplay."

One of those is the level of interactivity with the levels. "It's really



"We hope to include what we call 'surprise and delight' features, which are things you discover as you go along, and they're useful or they're fun or you weren't expecting them"

important to us that you'll be able to damage things and you'll be able to alter things," Hilton says, reassuringly. "Firstly, because you have to do that these days, and also because it's a lot more fun if you think you're having an effect on your environment – it's always disappointing if you shoot something and nothing happens, so it's something that is very high on our priorities and we'll make sure that as much as we can do that you can leave your mark, however you choose to do so."

Hence you should expect windows to shatter, pub signs to swivel, bullet holes to be punched into walls, and perhaps a couple of new additions. But you can file away any grand ideas you may have already conjured up in your mind for future reference.

Making it happen

"It's like one of those things about curved surfaces and deformable geometry: it sounds nice," Doak begins. "I remember one of the things in *Perfect Dark* about having walls that you could explode and you think about it: 'Oh yeah, we can build some in, it will be great', and the next thing is, 'Oh, they're special cases'. You've just developed this massive inconsistency, so then you have to flag them – so there might as well not have been a wall in the first place."

So blowing up entire houses is not on the menu, but you do get to play around with dynamite and grenades, as well as shotguns, pistols, and machine guns from the differing time zones. The weapon list is still to be finalised, as is where they will be places through the levels. Thinking about it, the enemies will need to know where to stand, too. And as the AI is still being worked on, they may not necessarily do what they're told just yet. But while there's plenty to do before the proposed October 26 release, no one at FRD seems particularly nervous.

For that matter, neither is **Edge**. Even at this stage, *TimeSplitters* is immensely playable. To the uninitiated, it may initially appear shallow. But before you know it, its frantic pace and unique character, combined with some already masterfully honed action, has you hooked as the game opens up, revealing its true depth. Imagine what the finished article will play like.





The initial influence for the game came straight from B-movies and as such the game doesn't take itself too seriously, which in the FPS world is more than welcome. Environments for levels include a military base, a village (complete with pubs and a cellar network), bank, an Egyptianesque tomb complex, a dockside setting, and a barren outerworld landscape











While particle effects are up to the rest of the game's high visual standards, **Edge** felt the dynamite explosions looked a little weak. Still, the weapons are still under development. Likely to be a CD rather than DVD release, the subsequent lack of a Dolby Digital track would be a shame given the quality of the current audio accompaniment







At times, some of the arenas open up to offer areas, which convincingly highlights the level design that has gone into the game (above). The promising multiplayer modes remain the game's chief focus





Inside…

Kuju Entertainment

Having built a reputation for delivering quality flight sims for the hardcore PC hobbyist gaming market, a UK developer in the finest English tradition is coming back down to earth. Edge visited Surrey in search of PS2 racing, cream tea-style

Photography: Martin Thompson

Kuju Entertainment's sole Dreamcast dev kit is for sale, although as yet there have been no enquiries from hopeful purchasers. "You can put that in your story," chuckles **Ian Baverstock**, the company's business development director. He has good reason to be cheery: his studio is currently working on a PlayStation2 racing title in conjunction with one of the world's most respected motor companies; it recently began work on X-Box development; and it will be responsible for delivering what Microsoft believes will be its next new simulation sensation for the PC.

Based in Godalming, Surrey, just down the road from Guildford, where a wedge of more high-profile developers famously reside, Kuju Entertainment may not command immediate attention from **Edge** readers. The company's most significant console title to date is the faintly risible *Tank Racer*, and its most recent work has been in the field of air combat sims, such as the accomplished *KA-52 Team Alligator*.

So how did the developer get into bed with Sony and find itself building premium content for PS2? Sitting in the company's unassuming boardroom within an anonymous-looking smattering of buildings situated on a slightly tatty industrial estate on the outskirts of town, answers do not vividly present themselves.

Managing director **Jonathan Newth** has a theory: "To quantify it, we started working with PC 3D cards in 1994 – the first card we had was a Yamaha card, which never made it to market. Every six months since then there's been acceleration in PC technology. We've been working closely with 3D card guys and Microsoft, learning every six months about new generations of technology. So, it's taken us five years and we've learnt a lot along the way. So, approaching PlayStation2 we have five years of understanding."

"Well, I'd say it's a bit more than just understanding," Baverstock interjects. "Jules [**Julian Davis**, Kuju's technical director] sits on the graphics advisory board with Microsoft. We've been closely involved in a feedback link with them, so we've been following and understanding the architecture possibilities."

The Lotus position

Of the many games expected to reach the PAL PlayStation2 market within its first 12 months on sale in this territory, something like 40 of them will be racing titles. The success of the likes of *Gran Turismo* and *Colin McRae Rally* clearly hasn't gone unnoticed, and it seems that every man and his dog is preparing his own spin on one of videogaming's most established genres to take. Few of them, however, can boast the kind of partner that Kuju can with Lotus, with which it is working to create *Lotus Challenge*, a title that, as well as providing the core gameplay components now expected in this sector, will forge ahead in celebrating a distinctly British success story.

"I went out and talked to a few car









"We're doing dual-pass rendering on everything," reveals Julian Davis, "and most of the imagery will be prelit, so that we can use much higher quality lighting operations for the terrain, and then we can perform dynamic lighting effects on top of that"

companies," relates Baverstock, when questioned on the game's origins, "and a lot of them have done non-exclusive licences with a lot of people to put their cars in lots of games, and they're beginning to realise, as are I think are a lot of other corporations, that games are a very powerful medium to use to get through to either their current or potential consumers. They're sitting there, saying, 'This is a lot of eyeball time compared to, say, a TV advert'. And with people like the guys at Lotus it was very easy to go talk to them and say that they really ought to do a game that uses their own brand, where we can really focus on your cars and your history, your tradition.

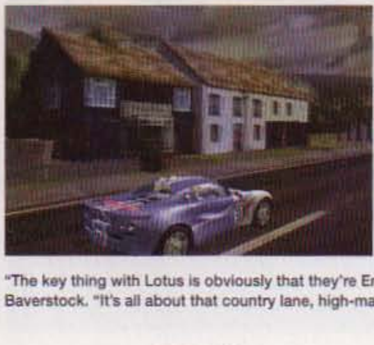
"You could easily argue that the premium brands in *Gran Turismo*, for example, are diluted, even damaged by being associated with, say, a Yaris or whatever. There's a whole load of milkfloats in there, for God's sake. If what you're doing is aspiring to own an Elise or a Porsche or a Ferrari, then it doesn't really work. I think it's quite likely over time that we'll see more of the premium brands in cars do what Ferrari have been doing for a while, which is basically saying, 'No, our brand is far too valuable and far too important to just mix up with all these other people'."

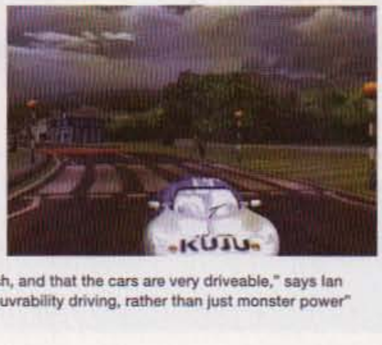
It's certainly easy to see how suits sitting around a table at a motor manufacturer HQ could identify the extra licensing cash that might be 'leveraged from established IP'.

"When you look at the overall scale of the issue for them, the money isn't actually the key issue," counters Baverstock. "The money is secondary to the presentation of their brand. If you screw around with their brand, that's far more dangerous to them than any amount of money they might or might not make from a videogame."

Sharing technology

With a company such as Lotus – which clearly is no mass producer like a Ford or a General Motors – it's not difficult to understand why passion is such a key part of the mix. Having identified the potential that the marriage of Kuju's experience and the power of new

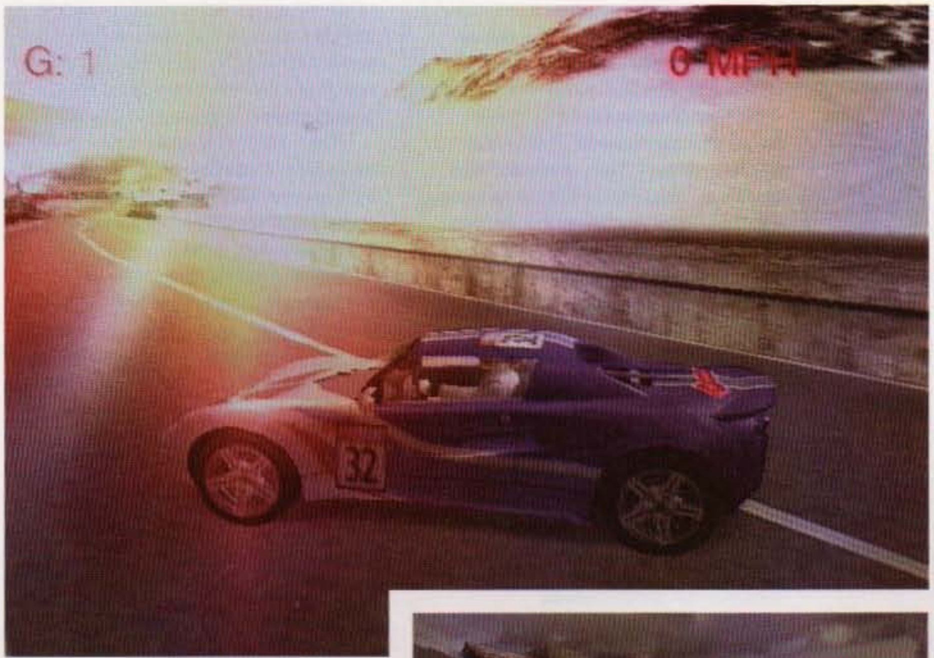




"The key thing with Lotus is obviously that they're English, and that the cars are very driveable," says Ian Baverstock. "It's all about that country lane, high-manoeuvrability driving, rather than just monster power"







A *Lotus Challenge* car model such as this is made up of 6,000 polys. You should see the X-Box demo...

gaming technology could bring to its famous range of automobiles, Lotus has committed to working closely with the codeshop, providing reams of data, including everything from telemetry to power-torque curves, that can be incorporated within the code without too much pain.

"The main thing that they're giving us are the variables for each car," reveals project director **Ad Stevenson**. "We've got 41 cars in total, and obviously they all behave differently, given things like centre of gravity, exact dimensions, plus all the other elements Lotus have given us. Once we've got a driving model that works, we can put all this data in and the car will handle differently. We've tried putting a Lotus Carlton in, which is just a very powerful saloon car, and it does handle very differently to everything else, which proves that our driving model works as it should."

This model has been built entirely from scratch (this, given the existence of *Tank Racer*, comes as particularly good news), although, again, it does include what



Kuju claims that view distance will be up to two miles on some tracks. Extra scenery is to be added



Stevenson refers to as 'some elements from Lotus's own driving model'. The team makes it clear that, using data such as this, it is working towards building a super-accurate driving experience. But what about that special 'x' factor, the tapering of code that prevents the rabid chase of realism from being overbearing, and crushing raw enjoyment as a consequence?

"Well, we'll have varying different modes to allow for varying levels of ability, just as *Ferrari 355* does," says Stevenson. "But we also have a new control system that we're thinking of implementing. We're not saying anything about that at the moment in case anyone nicks it," he smiles, "but there's a new way of using the joypad that we've come up with."

Smashing through windows

What's especially compelling about *Lotus Challenge* is that Kuju is consciously building something more than simply a meat-and-potatoes racer with gravy in the form of a prestigious brand poured on top. Intriguingly, a stunt mode exists, and although at the time of **Edge**'s visit only a handful of stunt tests – 180°, 360°, acceleration, and broadside

Microsoft Train Simulator

In stark contrast to *Lotus Challenge*'s petrolhead nature, one of Kuju's other key projects right now is a title for Microsoft's games division. Intended to follow *Microsoft Flight Simulator*, *Train Simulator* will offer users six of the world's most famous rail routes to traverse, and nine different trains, from the Flying Scotsman to Japan's electric varieties, to drive. The emphasis, naturally, is on realism, and to this end Kuju's dev team has studied hour upon hour of footage from around the world (the offices are piled high with impenetrable-looking videotapes from Japan containing film of particularly exotic routes). The ultimate in trainspotterism is planned for a spring release next year.





Players can enjoy the railway 'action' from the viewpoint of engineer, passenger or bystander. Challenges include keeping to passenger timetables and negotiating mountain passes

Kuju's PS2 engine tech

Starting in September last year with the first iteration of Sony's PS2 dev kit, Kuju has been evolving its own proprietary 3D technology in the form of its Sigma engine. The code, which focuses on delivering natural-looking AI and subtle graphical nuances, is a testament to the company's technical nous. You can download the demo AVI from www.kuju.com.



Halcyon Sun

Having specialised in the field of flight sims for so long, Kuju may not be expected to be taking a punt on a wildly experimental project, but that label is something most definitely applicable to a PC title it is working on for Freeloader.com, the lauded Web site which exists simply to offer free games online.

Halcyon Sun will be the first game to explore a buzz phrase that's been doing the rounds among more forward-looking creatives for some time now: episodic content. Or 'Webisodic', if you like. The plan is for 12 episodes to be made available over a 12-week period, starting in September. A slab of main code is downloaded first, and the packet-like instalments (at around 3Mb a pop) sit on the back of it thereafter.

With realtime cut-scenes interspersed with deep-space combat, *Halcyon Sun* will be aimed at both hardcore and casual. It'll certainly be an experiment worth monitoring.







The main action is *Colony Wars* in style, but, more importantly, it is complemented by almost three hours of story, delivered in realtime 3D by motion-captured models and voice actors

parking into a space (the most spectacular, if obviously difficult, manoeuvre) are in place, Stevenson promises that the team is "planning to have a lot more stuff, like jumping off ramps, through windows," which brings to mind images of *Super Runabout*. Surely Lotus wouldn't approve? "Yeah, absolutely," says Stevenson. "The fantastic thing about working with them is that they accept that we know how to make computer games. And we accept that they know how to make cars."

This extends to general car damage, too. Whereas in the likes of *Gran Turismo* you can ram your vehicle into a bollard at 150mph and bounce off without a scratch, *Lotus Challenge* will feature full damage options.

"Lotus didn't need any persuading about that," says Davis. "The problem with multi-brand car games and people smashing them up in them, I don't think it's really that the car companies are worried about smashing their cars up; what they're worried about is that their car looks worse than someone else's car in the same game. So Lotus's view was, as long as it's physically real – so the car just doesn't fall to bits and is unnaturally unreliable or anything like that – it's fine. They really didn't have any problem with it at all."

Driving technology

The damage modelling isn't in there yet, but cars are driveable, and are well modelled, from around 6,000 polys. These triangles build outer shell and inner details, down to drivers who'll be animated in the final game. (Other driving games offering a choice of soft-top cars have 'cheated' in the past by not providing 'top-down' versions in order to save on polys that would be necessary to render driver detail; *Lotus Challenge* will not.)

The development team is currently putting together an ambitious bundle of tracks on which to place these cars, although only two are based on real-life locations – one being the Lotus test track from the company's HQ in Norwich, the other based on London (in an odd twist, the track designers put together their own take on what a GP circuit would look like in the UK capital and were amused when a story broke in the national press about a proposal for the very same thing to happen in real life: the suggested route around famous landmarks was eerily close to their own).

Lotus Challenge looks as spartan as all games do at this point in development. A version featuring the proposed seven other competitors has yet to be built. But the drive is on to create an environment that looks as convincing as the host technology will allow (an X-Box demo version exists, too, but at the moment that's all it is – a demo). Talk inevitably turns to that most chewed-over of PS2 hardware topics: antialiasing.

"This is sort of cheaty AA," says programmer **Matt Hobbs**. "It's quite subtle, but it uses the last frame to create a form of motion blur. It sort of gets rid of the interlacing to a certain extent, as well."

Hobbs' reasoning behind this methodology seems to make sense: "If you're going to use the hardware AA you end up using about 70 per cent of your video memory just as a frame buffer. But this effect is pretty 'cheap'. And you don't tend to notice that it's motion blur, because with PS2 you can alpha blend to whatever level you want, so you can just make it really subtle, which is enough just to take the edge off it, but not so much so that you think that motion blur's on all the time."

> **"Lotus accept that we know how to make computer games. And we accept that they know how to make cars"**

It's not a wholly convincing replacement for the 'real thing', but it certainly eliminates the kind of harsh edges evident in the first round of PS2 software. With nips and tucks it may yet prove an even more effective solution.

Engine noises

Davis, meanwhile, is keen to talk about other issues – namely audio. "One cool thing that Sony's been talking about recently is the whole area of sound processing," he begins. "Fundamentally, the PS2 has two old sound chips from a PS1 stuck together, and you can program it in exactly the same way. So that isn't actually much of a jump – it's twice as powerful as PS1 – but you have a whole PS1 processor sitting there which has got absolutely nothing to do apart from load stuff off CD or talk to your sound chips for you. So you can do a load of different things. You can make up any piece of code to write a filtering DSP that can manipulate your sound files in some crazy way. The obvious thing to do, when you're writing a car racing game – you want the engine sound to be hyper-realistic, to follow the flow of the engine revs and the speed you're going, the amount of torque you're putting on and suchlike – is to synthesise the sound instead of just playing a sample, and then potentially you're going to get a much richer sound. That's another area of research that people are looking into."

With the spirit involved in the project, from the Kuju creatives in Godalming to the bods in white coats up at Lotus in Norwich, this seems set to be just one more component that makes up a labour of love.





Ian Baverstock

Joint CEO



Jonathan Newth

MD and joint CEO



Julian Davis

Technical director

FAQ

Company name: Kuju Entertainment

Affiliated brands: Simis, Glass Ghost

Web site: www.kuju.com

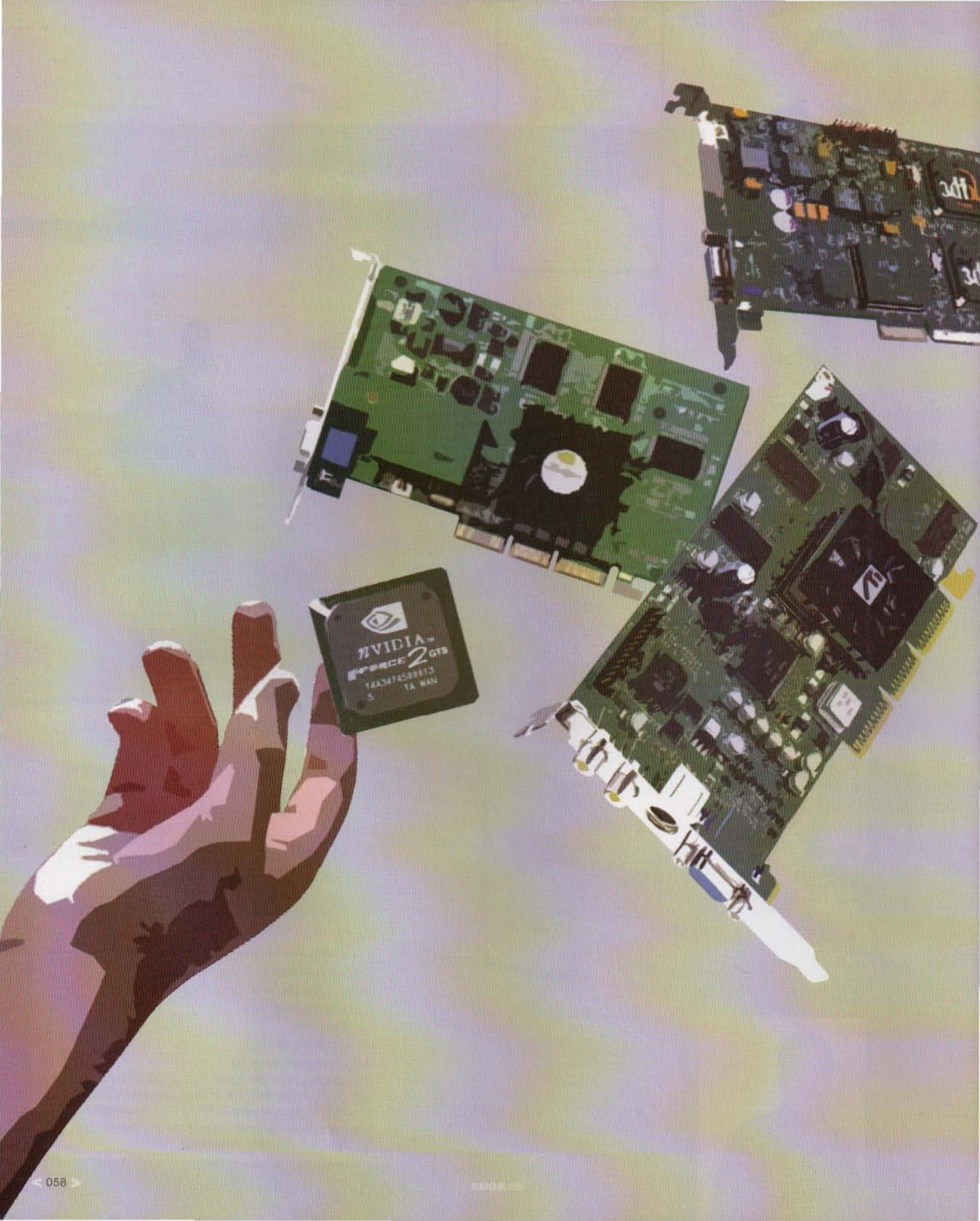
Founded: 1988

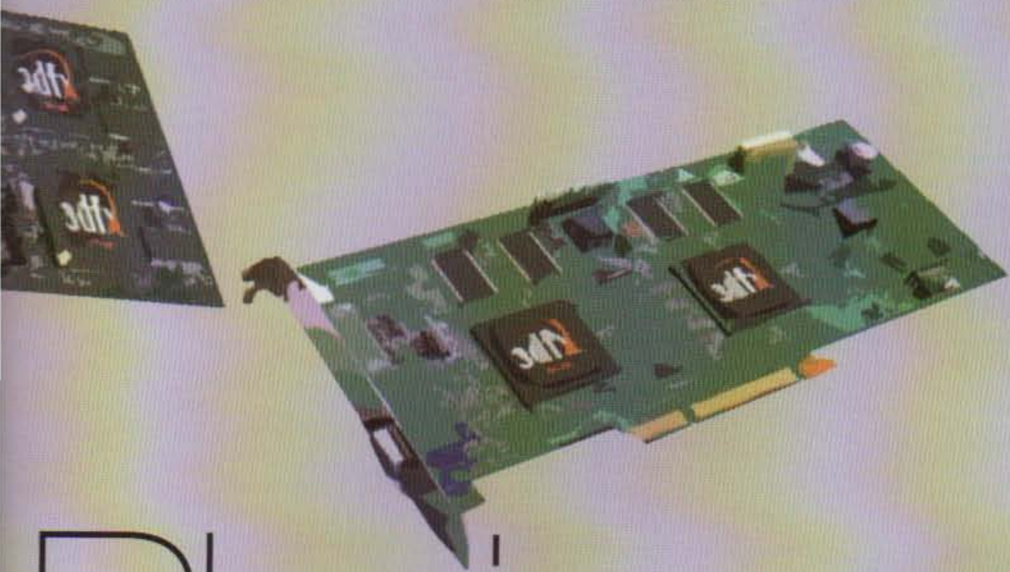
HQ: Godalming, Surrey

Number of employees: 60

Softography: *Flight Sim Toolkit* (PC), *AV-8B Harrier* (PC), *Eagle One: Harrier Attack* (PC), *KA-52 Team Alligator* (PC), *Tank Racer* (PlayStation), *Missing In Action* (PC), *Terracide* (PC)

Projects in development: *Lotus Challenge*, *Halcyon Sun*, *Microsoft Train Simulator*, undisclosed WAP title


NVIDIA
2 GTS



Playing cards

Not only is Microsoft's annual PC games conference a place for coders to talk shop, it also provides an opportunity to crunch alpha code on the latest graphics cards. Edge looks at what happens when developers go to test

In many ways the Independent Hardware Vendors' (IHV) compatibility-testing program, held under the auspices of Microsoft's Windows Game Developers Conference (WGDC), is like an industry-wide blind date. Developers sign up for sessions with graphics card companies on a whiteboard at reception. Meanwhile, the hardware vendors sit in anonymous, beige hotel rooms with caseless PCs stacked on trestle tables, cables strewn over the floor and laptops jacked into phone sockets. Occasionally, the power the machines draw will trip a room's circuit breaker, shutting everything down.

The real crunch occurs when the developers actually meet the hardware guys, though. Sometimes they know each other and it's fine, but more often it's an awkward meeting of two sets of strangers – and not everyone possesses good social skills. When finally introduced they get on famously, of course. After all, they are members of the happy PC development sect: a community with open architecture and no licence fees to pay. In place of Cilla sits a similarly wholesome and toothy Microsoft – midwife to the whole process.

Day 1: Deep Red and *Monopoly Tycoon*

For the first day of the testing program, **Edge** pairs up with Deep Red, a development house spun out of Hasbro Interactive. It currently has three games in development: *Thunderbirds* for PlayStation2, an as-yet-unnamed football management game, and *Monopoly Tycoon*, the game it's testing today.

A combination of Hasbro's Monopoly licence and its Tycoon brand, the game takes the Monopoly board and crosses it with *SimCity*-style graphics and management gameplay. While this may seem to be a strange title for **Edge** to cover, it's interesting because the licence's massmarket appeal forces a minimum spec of a P200 running the game in software. It will have to work on all graphics cards, too. **Edge**'s pointman for the day is **John White**, the game's lead programmer.

Room 1: S3 Graphics

The first IHV on the schedule is S3. Currently undergoing a difficult reorganisation with its graphics card business being bought by VIA, the company is currently down on its luck. The one area it is targeting is the laptop market.

Testing machine spec

Toshiba Tecra 8100 laptop with Pentium III 500MHz with Savage MX AGP chip and 8Mb of integrated RAM

NVidia is the hot ticket of the show, thanks to its involvement with X-Box and the success of its GeForce cards – its testing rooms are very busy

Verdict

When the game is loaded, there are some problems and the neat nighttime specular lighting effects are lost as the card doesn't support multitexturing. It also runs a little slowly, but this isn't too surprising as the game is unoptimised and uses a lot of texture memory. S3's **John Casey** reckons the game looks 'pretty rockin'', and White seems pleased with results too. It's the first time he's seen it running on a laptop.

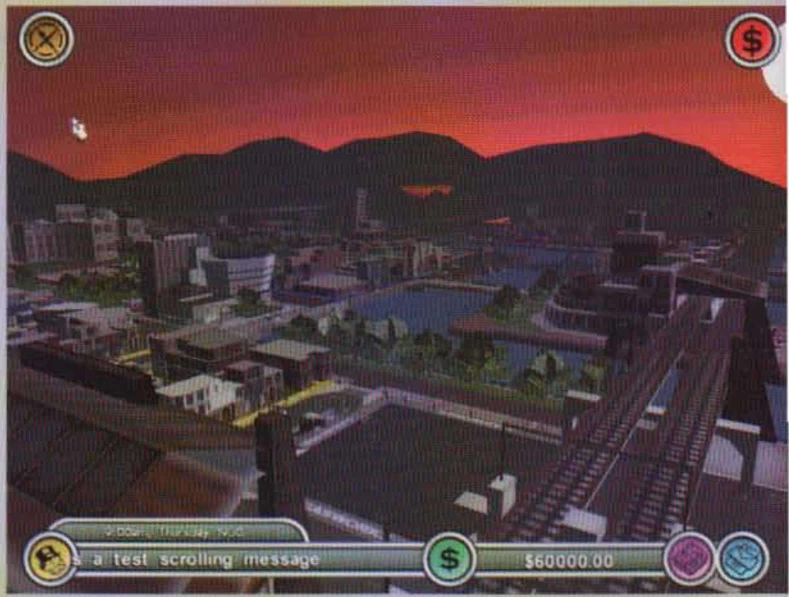
Testing machine 2 spec

Athlon 900MHz with Viper II graphics card and 32Mb of RAM

Verdict

"What's going on in the background? It's not clearing the screen properly," Casey comments. "Allocate Z range for the 2D stuff or try adding a native W-buffer that can be toggled," he suggests. White is unsure that allowing users to toggle between the W and Z buffers is something the game's target audience is going to comprehend.

"It worked well in *Messiah*," someone else pipes up. "We've seen this problem before," Casey admits, and the problem is finally blamed on the drivers, which aren't the latest version. Everyone leaves, honour intact.



As a massmarket title, Deep Red's *Monopoly Tycoon* has to work with an enormously wide range of 3D cards

Room 2: NVidia

The current hot ticket of the show thanks to its involvement with X-Box and the success of its GeForce cards, NVidia's two testing rooms are very busy all show.

Testing machine 3 spec

Athlon 700MHz with a GeForce 2 GTS and 32Mb of RAM

Verdict

The game appears to be running fine until White starts to notice a problem with some of the window textures, which are popping and displaying white noise. "When you say multitexturing, you are using two textures stages, right?" asks NVidia's **Dave Horne**, trying to get the root of the problem. But



The future of the PC?

It wasn't all work, work, work at WGDC, a point Edge hammered home at the party, held at Namco Station, beneath the London Eye. It proved to be a fruitful opportunity to quiz developers on the two burning issues of the day, notably: 1. What's the most exciting thing about DirectX?; and 2. Is the PC dead as a games platform?

Jason della Rocca Proksim Software



1. I'd have to say the graphics, the programmability, the pixel shader and the vertex shader stuff.
2. I don't think so. In terms of online multiplayer games the PC platform is still the most viable one. Sony, Nintendo and Sega are still trying to figure out the connectivity side.

Lee Sanberg AB Colored Media



1. Ease of use – you can get going fast. I like that.
2. I don't know. I think the PC will develop into a console or something like that. The X-Box is a PC in some senses because it has a hard disk.

Bastian Rolf Ascaron software



1. It has an easy-to-use graphics interface which makes programmers' lives much easier.
2. I don't think so. There are very many management simulations and financial simulations out there in Germany. I think the X-Box will be great for action games, though.

Michael Brathwaite Computer Artwor



1. It's a good API on the whole. It's very functional. I can't say anything about DirectX8, though, 'cos I'm under an NDA.
2. No, because of the installed base and how easy it is to program. I think it will develop into a different market, though.

What goes on behind locked hotel doors at WGDC could be likened to the shenanigans of 'Blind Date', with developers and graphics card companies asking questions, wondering whether they're compatible





that's only the start of the questioning: "Are you using any level of detail?"; "Are you using DX texture compression?"; "What's your polygon throughput?" To which the answers, respectively, are: "No, it's not optimised yet"; "No"; and "About 70,000 per frame."

After a few minutes of discussion, it's suggested that Casey should put everything into big vertex buffers. "As far as we are concerned, and as far as Microsoft are concerned, the biggest state change you can do is the vertex buffer change," Horne states, underlining NVidia's new position as a partner to the entity that may as well be known as DirectX-Box.

Twenty minutes later Casey and Horne are still going strong: "What do you recommend as a vertex buffer size?" asks Casey. NVidia's European developer relations guru **Richard Huddy** turns up fresh from a talk on vertex shaders and higher-order primitives. "We've written some pretty crazy vertex shader stuff," he evangelises. Time to move on.

Room 3: 3dfx Interactive

The past year has been a tough one for 3dfx as it has faced very strong competition from the likes of NVidia. It is now finally rolling out the latest incarnations of its Voodoo 4, 5 and 6 multiple-chip boards.



Testing machine 4 spec

AMD 900MHz with Voodoo 5500 AGP board and 64Mb of RAM, split equally between the two VSA-100 chips

Verdict

The game runs without problems; even the window texturing issue seem fine. **Rory Duncan**, 3dfx's marketing manager, is keen to talk about the card's full-sample anti-aliasing technology. "This is highest quality anti-aliasing you can get on any board," he boasts. "How have you found some of the other boards?" continues Duncan. "Well, we've had a problem on a few of them, but it's probably in the game rather than the drivers," replies Casey, tactfully. "No, don't blame yourself," laughs Duncan. "Blame it on the other cards."

Overall day 1 verdict

"When you do this testing, the kind of changes you dread are big gameplay ones.

> "When you do this testing, the kind of changes you dread are big gameplay ones. We've just been getting niggles, so I'm happy"

We've just been getting niggles, so I'm happy," says Casey. The main issue thrown up was the 'noisy' window textures. John thinks it's due to the different 'Z' precision that cards use when dealing with texture coordinates. "It should be easy to fix"

Day 2: Infogrames and *Mr Dog*

The second day of IHV duties sees **Edge** shadowing a very different beast. Despite the unassuming name, *Mr Dog* is Infogrames' in-house crossplatform games engine. Designed by the ex-Gremlins stalwarts at Infogrames Sheffield House, *Mr Dog* is being used, globally, in the development of ten Infogrames titles. Another three *Mr Dog*-spawned games are also on the cards, and there's a PlayStation2 version already up and running. "It's much faster than the PC version," one of the team tells **Edge**.

On test today is a special version of *Mr Dog*. It's a technology demonstration of PC hardware transform and lighting (T&L) rendering that exists to push as many polygons and effects as possible. However, with only NVidia and ATi currently supporting the technology, there are few compatibility issues at stake. Today is more a case of showing off and talking about optimisation. Leading the charge is **Gary Edwards**, the producer of *UEFA 2001*, which will be the first game to use the *Mr Dog* engine.

NVidia

After waiting for 20 minutes for the NVidia team to turn up (they took the questionable decision to indulge in a protracted absinthe session the night before), the *Mr Dog* team gets down to business.

Jerome Muffat-Meridol Bits Studios



1. That it changes all the time. As for DirectX8, I suppose the vertex shaders.
2. Yes, it is. It's just the problem of finding the right business model, that's the difficult thing.

Glenn Corpes Lost Toys



1. I'm only hearing about the new stuff today and it does sound very cool. It's all thinly veiled about how relevant it is to X-Box, but it does look like a neat way at getting at the new hardware features.
2. I don't think so. With a bit of luck it will be dead for big publishers, which will make it interesting for everyone else.

Steve Haunts Core Design



1. Coming from a person who has just been introduced to it, it's much better than DirectX7.
2. Yes, because I think most of the PC's games are shit.

Michael Wiessmuller Wiregames



1. It unifies the hardware cards.
2. No. The PC has so much more to offer than a console can ever have. It has an Internet browser than has a full Java-script compliancy, and if you look ahead at the Internet, multiplayer gaming.

Jon Hare Codemasters



1. I honestly don't know.
2. I hope so, because it stops everyone focusing on the software. When the hardware platform's solid, software's the focus and all the developers are more like craftsmen.

Testing machine 5 spec

AMD 700MHz, GeForce 2 GTS with 32Mb of RAM

Verdict

The shiny mausoleum architecture of the demo positively glows with its specular lighting effects and highly polished floor. Unsurprisingly, considering NVidia's expertise in the field of hardware T&L, the demo runs well at around 50fps with 50,000 polys per frame. There is some flickering on the reflective floor surface, however, when it runs on *Windows 98*. It seems to work better with *Windows 2000*, but this is slightly confusing as *Windows 2000* isn't generally considered to be as robust as its predecessors with respect to hardware T&L yet. Everyone scratches their heads, wondering what the problem could be.

Dave Horne thinks it could be a timing issue that results in the renderer trying to write from a locked vertex buffer. Then the demo completely crashes, but all the *Mr Dog* team seems to be interested in is what higher-order surfaces NVidia is going to be supporting in its forthcoming X-Box card. 'Look at the feature set on the GeForce 2 card and in DirectX8 and expect more of the same', seems to be the response from NVidia, although no one will comment publicly. "I would be sacked if I said anything," reiterates a grave-looking Horne.

The demo completely crashes, but all the team seems interested in is what higher-order surfaces NVidia is going to be supporting in its X-Box card



Infogrames' in-house crossplatform game engine, *Mr Dog*, was put through its paces with a T&L technology demo which experienced few problems at the show, bar some flickering on the floor and some dropped blocks

ATi Technologies

Despite its strength in the OEM, Mac and laptop markets, ATi hasn't made a splash with hardcore gamers recently. The release of its impressive-looking Radeon 256 hardware T&L chip could change all this.

Testing machine 6 spec

AMD 700MHz with Radeon 256 and 32Mb of RAM

Verdict

The demo runs well but at a slightly lower framerate than the GeForce 2. Also there is some dropping of blocks. "That's a known problem with the Z-buffer," explains **Jason Mitchell**, ATi's head of technology. Then the talk slips into the usual technical vertex buffer exchanges. "Try optimising the index triangle list," he suggests.

Infogrames' core tech team continues its growing obsession with subdivisional surfaces by talking at great length about N-patches, which are a way of increasing the smoothness and polygon counts of 3D models without artists having to do any more work. N-patches are ATi's preferred option and Jason gave a lecture on the subject yesterday. "N-Patches are definitely the way to go," the *Mr Dog* people tell anyone in earshot.

AMD

Following Intel's last-minute hijacking of the X-Box CPU deal, AMD is demonstrating it harbours no ill feelings towards Microsoft by agreeing to co-sponsor WGDC.

Testing machine 7 spec

AMD Thunderbird 1GHz with NVidia GeForce 2 GTS card

Verdict

It may seem perverse to run a hardware T&L demo on PC with a 1GHz CPU when all the T&L is being calculated on the graphics card but, as AMD's **Mike Goddard** explains, "Sometimes we can run hardware T&L code faster in software than on the graphics card." This is something NVidia is sure to query, but Goddard believes that AMD got *Evolva*, one of the first games that supported hardware T&L, to run faster using Direct3D than on the GeForce 256 card. "It all depends on the implementation of the API," he remarks archly. AMD expects to have a 1.5GHz CPU out by the end of the year as well. As for the demo, it runs as well as it did in NVidia's suite. Obviously.

Day 2 overall verdict

Despite the fact that it was apparently put together in a week, there were very few problems with the hardware T&L demo of *Mr Dog*. The engine pumped out a lot of polygons, the lighting and reflective effects were dazzling and everyone went home T-shirted and happy, albeit slightly hungover. Roll on next year.

Richard Huddy NVidia



1. It's the fact that it moves forward every year so much. With DirectX5, I'm not sure we made a very big forward jump, but since then it's moved a long way forward.
2. Absolutely not. The X-Box leverages it to a terrific extent. It's a fine piece of hardware.

Rory Duncan 3dfx Interactive



1. Compatibility with the best PC titles that are out there at the moment. It's a good basic for having the best technology titles that are currently available today.
2. The PC continues to lead the way in having the best titles on any platform, anywhere.

Ted Bailey Creative Asylum



1. That's a tough one. [Asks his friend] N-patches.
2. Debatable. Publishers say yes, we say no.

Fred Gill Attention To Detail



1. DirectPlay voiceover IP.
2. No, because of the amount of investment that Microsoft is putting into it. It won't die.

Mike Goddard AMD



1. From our perspective it's that we get to do a lot of optimisation in the API, and the developers won't have to do it.
2. I hope not! No, I think the PC will always lead on the front edge of gaming.



territor
advanta

Videogames are now a worldwide phenomenon, but – as the tabloid press and TV are ever eager to point out – national differences abound. Edge talks to a UK company that has made it its business to ensure titles maintain their appeal across cultures

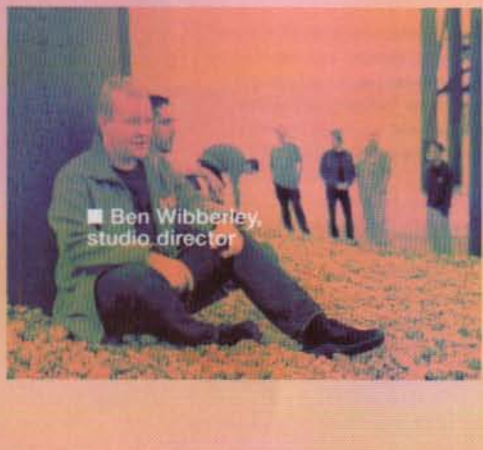
The localisation process is probably the most overlooked aspect of game development. When a title of the calibre and complexity of *Final Fantasy VIII* sells one million units in a non-native territory, the last people to receive any of the acclaim are those responsible for tweaking every conceivable linguistic and gameplay nuance for your consumption.

Increasingly, publishers are seeking assistance from outside specialists to make their games as dynamic and digestible for foreign markets. Hove-based Babel Media is one such company, with its staff often working 17 hours a day, seven days a week to produce games styled to your preferences in music, language, cultural nuances and status for little acclaim, although the company has more input into the creative process than you would ever imagine. **Edge** examines the team responsible for making your copy of *Resident Evil III* UK-friendly.

Building Babel

Hove-based Babel is a peculiar industry success story. Now employing a core of 30 multi-lingual staff (which can reach 100 for the pre-Christmas rush) Babel has been the only independent UK company exclusively working in the localisation field.

Just two years ago managing director Algy Williams and studio director **Ben Wibberley** began localising games in a two-bedroom flat. "When we started we had to warn clients that even if it looked a bit dodgy, rest assured there is actually a QA company behind the unmarked door at the top of some really dingy stairs," explains Wibberley. Building on its early success, the outfit soon needed extra hands and began recruiting. "It got to the point when the flat was at bursting point," reflects Wibberley. "Eventually we realised that having 30 people working out of the old place was getting completely ridiculous."



■ Ben Wibberley, studio director



In this short space of time, Babel Media has moved premises and has worked on titles including *Soul Reaver*, *Final Fantasy VIII* and *Civilisation II* – even *Silent Scope 2* for the coin-op market has recently undergone the tricky translation process. In fact, it would be unlikely, given the company's strong relationship with some of the major publishers, that gamers won't have played at least one title touched by the versatile team.

On the surface, Babel Media's speciality couldn't be more straightforward: take a product designed and written in one country and translate it for mass consumption in another. After all, what is so difficult about giving *Tomb Raider* a makeover for Japan? Core's classic is an action adventure game where levels are linked by the occasional blast of FMV. Tinkering about with the voiceover is a must, but surely watching the back of Lara running down a corridor is the same the world over?

Surprisingly, considerable alterations were required before the game could be shipped to the shelves in Akihabara's technology district. Play a Japanese version of *Tomb Raider* and you'll begin to notice subtle differences. Climbing scenery and leaping chasms is much the same, but if Lara receives a fatal barrage of machinegun fire or falls to her death, a mysterious aura surrounds her body and whisks her back to the beginning of the level. You don't hear the crumpling of the body, nor do you witness the writhing asphyxiation animations should she drown. Japanese execs, it seems, were concerned that the death of such an iconic character would be in bad taste – dishonourable even.

The localisation process

Such cultural considerations are only one aspect of the Babel process. Localisation can encompass text translations, proofing, functionality testing and even playtesting. One client may ask just for beta testing, whereas another could request the full package. Publishers are also turning to companies like Babel to help them negotiate the legal minefield which has seen titles like *Quake II* and *Mortal Kombat* disappear from the shelves in certain countries.

Most publishers deal with such issues in-house, if at all, but Wibberley is confident his outfit can offer a unique service, especially to those who see localisation as simply a final consideration in the long chain of events which lead to a game reaching retail. "The European market is now worth the same as the US market, and is growing," he explains. "The mindset at the moment is that when you are asked to do a Dutch or German SKU it is a pain in the arse. Localisation tends to be bolted on to the end of QA

Culture clash

Localising for foreign markets can be a fraught process – sensitivity and experience are required if embarrassing mistakes are to be avoided. When Toyota tried to market its MR2 in France it was greeted with howls of derision and poor sales – MR2 pronounced in a Gallic accent sounds like 'merde' – 'shit' in French. Missing just one letter out of a word can have catastrophic consequences, and game companies are keen to keep such mistakes to a minimum. The following are just a few errors which Babel has remedied through its localisation testing process:

At the end of a set of instructions in one game was the English phrase: 'Thank you and God speed'. The Italian version read: 'Che il Dio della velocita sia con voi e ve protegga.' This perplexed Italian gamers, who understood the more unfamiliar: 'May the God of speed be with you and protect you.'

In another game the Spanish translation of the word 'load' read 'cagar' – to, erm, take a dump. It should have read 'cargar'.

On an Italian helpline for a product, the word 'servizio', meaning service, was replaced by 'sevizio', meaning torture. A section on the same helpline read: 'Tell us your problem and someone will call you back between 9am and 5pm every day Monday to Friday.'

Jerry, the nickname for Germans in a WWII flight simulator, was literally interpreted in a game as being a specific person. The sentence construction eg 'Be careful, we don't know where Jerry is', continually confused players regarding who this Jerry was, and where he was located.



The Babel Media team is based by Hove's seafront. The location has proved ideal for recruiting foreign language students from the nearby universities. During the summer holiday period the Babel team expands from 30 to 100



Photography: Martin Thompson

as a last-minute thing, depending on how many units the territory is expected to buy."

The scope for a company specialising in these often murky and uncharted waters is immense. Imagine a developer/publisher team based in the US contemplating the release of a text-heavy RPG in Europe. Translating the title for the lucrative French market alone may seem worthwhile, but how about really capitalising on sales by localising for the German, Dutch, Swedish, Italian and Spanish territories? It's a much more sobering prospect. "Units shifted tells its own story," adds Wibberley. "If you have an adventure title, then you may sell twice as many units in Germany as the rest of Europe put together – including the UK."



Localisation is something which must now be considered during the conceptual stage. To do otherwise means lost profit and lost time. Past misjudgements have proven expensive





Diesel cashed in on *King Pin*'s sales. Is this a future sponsorship trend?

"I can go to a publisher and say that not only can I do this, but I can do it in a number of languages," continues Wibberley. "It's making people think about it. Knowing that German and French texts are 25 per cent longer than English means that you build your text boxes two centimetres bigger. These people should be saying to developers, 'Use dynamic text boxes and if you can't do that, scrolling'. That's the easiest solution." But simply translating a game into every major European language will not necessarily prove cost effective. "In Sweden, you might not be able to justify the development costs of a Swedish-language edition, due to the expected sales figures. In this case, leave the game in English and translate the packaging and manuals – the so-called 'box and docs' approach."

From a developer's perspective, localisation is something which must now be considered during the conceptual stage. To do otherwise means lost profit and lost time. Past misjudgements have proven expensive. **Rik Alexander** was a freelance producer on *Frogger* when the late arrival of territorial comments pushed the development period into freefall. "When we put it into submission the first thing they told us to change was the difficulty," he admits. "So the developers had to build three levels of difficulty into the game that nobody had planned for or anticipated. It took much longer to release."

Alexander hopes that lessons have been learned. He is now working on *Simon the Sorcerer 3D* for Hasbro Interactive. The biggest market by far for this game is Germany, so that territory's comments on the game and its direction take priority. Such considerations are now key to a game's global success. Infogrames has reported that one of its driving games saw an increase in sales of more than 20 per cent in Australia just because the in-game music was altered from dance to hard rock.







Civilisation II (left) was a mammoth translation task, requiring some 330,000 word alterations. *Duke Nukem* (centre) is available in Germany; *Mortal Kombat* (right) is not. Killing aliens as opposed to humans makes all the difference

The UK market in context

UK retailers had cause for celebration at the end of 1999, as the size of the British market grew ahead of any other European country. Although Germany is usually imagined as the largest single market, data from Screen Digest reveals that sales in the UK for 1999 topped £986.5m ($1.6bn), compared to Euro984.2bn ($1bn) in Germany. This makes the UK the third largest individual market, after the US and Japan.

More surprising is that for the first time the combined European leisure software market, worth $5.367bn, overtook the US market, which is valued at $5.314bn. Another first is that the videogame market overtook the video retail market in terms of spending. Another year of rapid growth for Europe, even though people are buying more budget games than ever.

A Datamonitor report estimates that online gaming could be worth almost $5bn within four years in the US and Europe. The US market will be worth an estimated $2.8bn by 2004, while the western European market will be worth around $2.1bn, the report predicts. Rising Internet penetration and Internet-capable consoles such as Dreamcast are expected to contribute to the expansion.



But **Michael Soutos**, a producer at Eidos Interactive, disagrees that *Duke Nukem* really got away with anything, as it was given an age rating. "This didn't really harm sales as it was a must-have product, broaching subjects that hadn't been done in games before," he says. "For example, the porn film in the cinema or having a pee – not really extreme stuff in today's market, but it was extremely different back then." Unsuprisingly, France is more open to nudity and women going topless in beaches or in bar-room scenes, typical of *Duke Nukem*. UK gamers, however, will be treated to pixellated bikini tops.

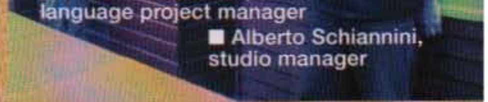
Where differences in taste may account for a small drop in sales, legal differences can result in no sales whatsoever. Even LucasArts' bland *Dark Forces* was a victim of German legislation

But where differences in taste may account for a small drop in sales, legal differences can result in no sales whatsoever. *Mortal Kombat* and *Wolfenstein 3D* remain outlawed in Germany, and even LucasArts' bland *Dark Forces* was a victim of German legislation. Wibberley suggests that a certain amount of forethought can overcome such predicaments. Swastikas in games are strictly prohibited in Germany, no matter what the context. Yet it doesn't take a great deal of imagination to realise that other symbols could be used instead. Not the best compromise, perhaps, but one which might avoid the title going on to the pernicious BPS index. As Wibberley points out: "It is possible to purchase videos of animals having sex with adults in Germany, but show blood in a videogame and it gets banned."

The exception proving the rule

Duke Nukem, however, managed to get away with a lot in a wide variety of territories. Alexander agrees that the game was a unique case. "I guess *Duke Nukem* slipped through the folds as it was one of the first released 3D shooters that went big," he says. "Plus you fragged aliens, not humans, and compared to games like *Quake*, of around the same time, it had nowhere near the same level of gore."

One legal loophole which Babel is keen to advise on is the opportunity to use branding in games. Product placement is strictly prohibited on television, but remains legal in videogames. Alan Partridge clumsily promoting his Rover 200 on his own TV show is a broadcasting taboo, but Lara Croft picking up Lucozade bottles to boost health instead of medipacks is the kind of opportunity publishers will find hard to resist in the future. Diesel has already brought its brand to two massive games: *King Pin*



■ Emanuelle Dumas, language project manager

■ Alberto Schiannini, studio manager



Rare's decision to drop the importation of players' faces into *Perfect Dark* was due to increasing unease in the States over videogame violence. The USA still remains the most lucrative territory and to some extent can dictate global development characteristics. American legislation could have wide repercussions





■ Simon Latimer, systems manager

■ Dorothea Mützel, language project manager

"Persistent world scenarios are probably the most difficult thing to get right. The elements in the game are set. How do you deal with stuff like that? How do you deal with translation in realtime?"

Localisation and legalisation in Germany

Germany remains the single largest PC territory outside of the US and only falls behind the UK in Europe in terms of its console market. Getting a game on to the shelves in Germany is therefore critical for publishers. However, the often-confusing legislation and censorship measures in the country have seen many titles fail to reach retail.

Avoiding the Bundesprüfstelle für jugendgefährdende Schriften (BPS) index is key. This federal authority was instituted to prevent the publication of materials which might cause 'confusion or disorientation with respect to social behaviour or ethics'. But while the index prevents the dissemination of Nazi propaganda, it also covers games which court little controversy in other countries.

A game going on the index effectively kills its sales – the product must be kept out of sight of minors to ensure they do not know of its existence. The BPS isn't meant to censor items from adults, although the costs and loss of publicity mean that there is little incentive to publish a game which won't appear on the shopfloor. Activision didn't even try to introduce *Quake II* to the German market.

One of the more effective, though sometimes risky, ways of avoiding the index is to pay for a USK rating. The Unterhalttungssoftware Selbstkontrolle is an organisation supported with federal funding, but its ratings have no legal standing. The cost of the voluntary USK rating can be as much as US$3,000, but may influence the BPS decision. A game receiving 14+ will be unlikely to be indexed. However, LucasArts' *Dark Forces* (left) received a USK ruling of 18+ and was later withdrawn from retail after the BPS ruled it was in violation of decent ethical standards.



Should a software title avoid the index, it could still be subject to German criminal proceedings. Paragraph 130 – 'public displays of Nazi symbols' – and section 131 – 'glorifying violence' – were established to prevent public displays of political extremism. *Wolfenstein 3D* and *Mortal Kombat* fell under the same banner, and to date are the only two US games confiscated in Germany.

and the soon-to-be-published *Driver 2*. "These are great opportunities for games companies," adds Wibberley. "Why not have the hero of a game wearing Diesel jeans? You can move into sponsorship. I don't think it's that cynical – you can make it cool." Perhaps gamers will even eventually get to find out Solid Snake's preferred brand of cigarette – which will change from territory to territory, naturally.

A territory-independent future?

But what of the future for localisation companies such as Babel? Internet gaming and publishing is expected by many to eventually overtake the solo gaming experience. Datamonitor estimates that online gameplaying could be worth almost $5bn in the US and Europe within four years. But how will developers localise for persistent worlds? Babel sees online gaming as a challenge rather than something it hopes will go away. "For me it's the next stage," claims Wibberley. "Persistent world scenarios are probably the most difficult thing to get right. The elements in the game are set, but how do you deal with stuff after that? How do you deal with translation in realtime – is it possible? Quite how we get around that I haven't quite figured out."

Babel's task would be one of biblical proportions: to push human ingenuity and arrogance to its limits in the construction of a universally recognised linguistic structure. But can a cohesive machine translation system be implemented in the near future? The foundations are still being laid.





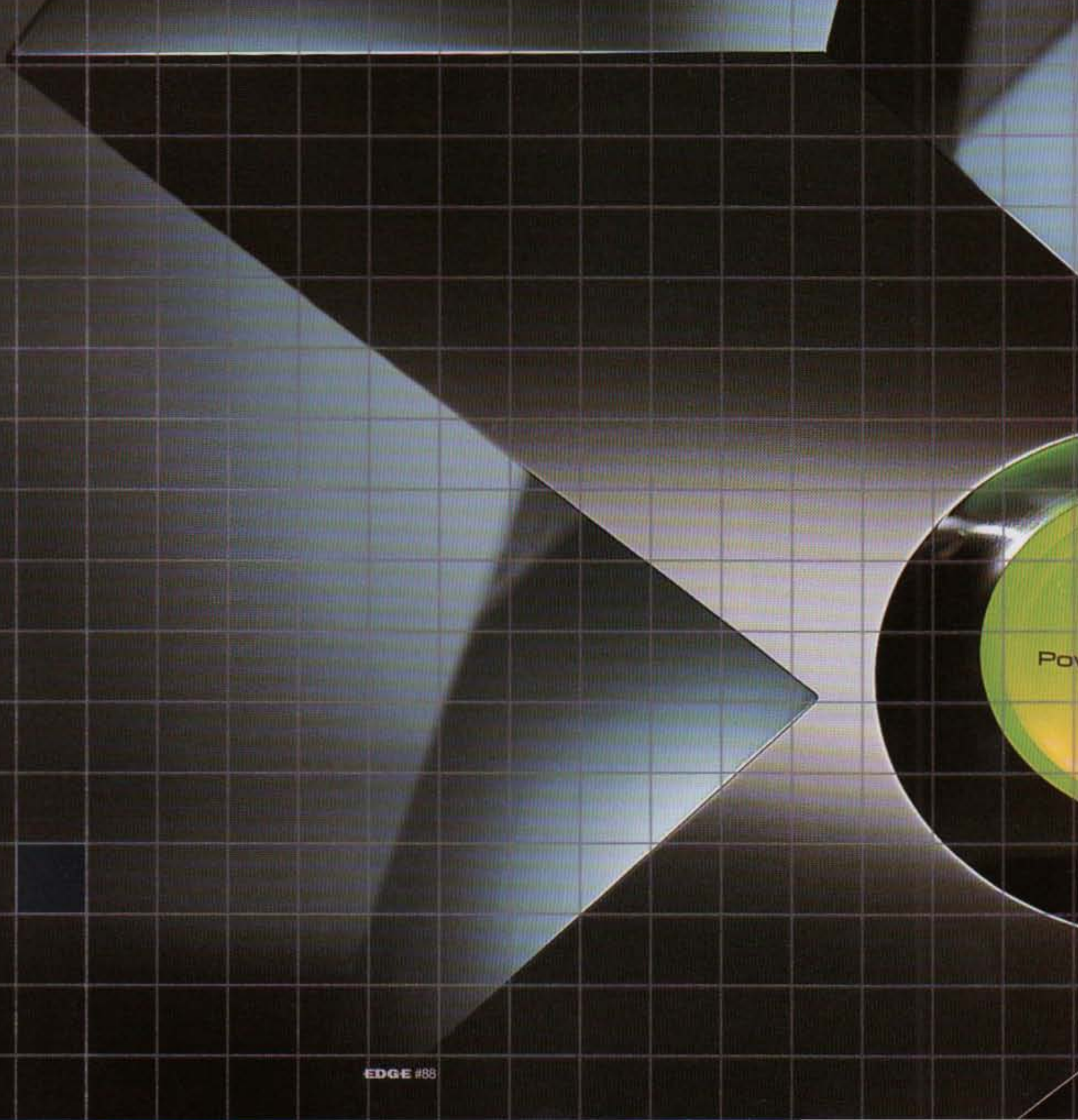




Photography by Bruce Carroll



X-Box from co contender –



ncept to console the story so far...



Edge talks to the team tasked with turning the videogames status quo on its head, moving Microsoft into the new millennium with the emphasis on play, not work. Who dreamed up the idea, how did Microsoft approach the logistics of the project, and what is it that will set the console apart from the pack, PlayStation2 in particular?

February 14, 2000. The last console war is history – the 'stereo company' the clear victor, with a worldwide installed base of 70m PlayStations. The corporations grown fat on gaming are busy preparing for the next war. Sega is working on growing Dreamcast through online promotions and great games. Nintendo is hinting at Dolphin and how it will return the company to the top, all the while insisting the N64 isn't dead yet. Sony is less than three weeks away from unleashing the PS2 on Japan, where it will break all kinds of sales records on its way to world domination – again.

But, deep inside Microsoft's HQ, Bill Gates has just given the final approval on X-Box. Should it even matter? Microsoft is just some software behemoth trying to get into the console business, and it'll fall flat on its multi-billionaire face, won't it?

Does the company really have a chance breaking into the console market at the very time when the US Department of Justice is intent on breaking it in two? **Edge** visited Microsoft, talked to the X-Box creators about how the project has developed, and found out how they intend to stir things up in a contest that is – if you believe all that you read – over before it has even begun.

"It came to me on a plane, of all places," recalls **Seamus Blackley**, one of the proud fathers of the X-Box and the initiator of the long (and, Microsoft hopes, fruitful) launch process. "I was looking at PC hardware coming out at the end



Name:
Seamus Blackley (aka Dr FeelGood)

Position:
Director, X-Box Advanced Technology Team

What exactly it is you do:
Buy X-Box developers drinks

Background:
Tried to pick up girls by playing jazz piano; tried to pick up girls by being a physicist; tried to pick up girls by making games; trying to pick up girls by working on X-Box

Career high point:
Beating J at *Robotron*

Most embarrassing moment:
My mother seeing the *Wall Street Journal* article on my 'elevator' technique at GDC

Lesson learned:
Media blackout for Mom and Dad

Catchphrase:
'A team that doesn't have fun can't make a fun product'

If you weren't a high-profile figure in the games industry, you'd likely be:
Living in the gutter, trying to pick up girls

of the year and I started thinking, 'Good lord, we could make just one monstrous son-of-a-bitch game console with one of these things'."

Around January '99, Blackley brought the idea to **Kevin Bachus**, who immediately saw its potential. "We [realised we] could produce something just like a console, but with all the advantages of the PC," explains Bachus.

Soon Bachus and Blackley had pretty much given up their day jobs to focus entirely on X-Box. They went to publishers, developers, hardware makers and consumers to find out what people really wanted. Once they had enough feedback, they pitched the idea to **Ed Fries**, head of Microsoft Games, to see what he thought. The final key addition to the core team came in the form of **J Allard**, the man who brought *Internet Explorer* to the world (and Microsoft to trial), and who, at the time, was off racing bikes and being all 'extreme'. They tried to convince him that this 'X-Box thing was going to be huge', to paraphrase one of Allard's pre-*Explorer* quotes regarding the Internet. But it took a bad racing fall and a broken ankle before he finally joined the team.

Every three months the group would convene with Bill Gates and Steve Ballmer, and each time the project could have been cancelled – but it never was. Allard describes the process like this: "We all went into our own areas. Seamus worked with developers, Kevin worked with publishers, Ed started growing a portfolio, and I started working out the OS. Then we got together and beat the shit out of each other."

"Much of the process was deciding what the X-Box was not going to be," recalls Fries. "Vested parts of the company wanted other things, but we had to go through focusing the project. It's not about PC game compatibility, WebTV, or productivity." And each time the group decided to further focus the X-Box on gaming, it faced another corporate battle.

Most of the radical ideas about reinventing the console business went by the wayside, but the one thing that had to be changed with the console model was the development process. As Blackley explains: "Why throw out everything you know each time a new system comes out? From a development-cost point of view and a quality point of view, it just doesn't make any sense."

For the first time ever, a piece of hardware is being created from scratch by guys who have spent their lives developing software.

"We have an opportunity," says Fries. "Once you decide to do something like this without the history [of a Sony or Nintendo], you can take a fresh look at it. We have an opportunity to fix a lot of what is wrong."

Microsoft's solution? To unite the console business model and design with the development methodologies of the PC world – making little fixes

to each along the way. The original plan was to launch X-Box in autumn 2000 to go head to head with PlayStation2, but Bill Gates wasn't impressed.

According to Allard: "Bill said: 'Not good enough. If you have some sort of benchmark, you may win, but you wouldn't notice the difference. You have to be able to see the difference'." So the team went back and upped the X-Box's specs and processor speed for a 2001 launch date.

Eventually it all came down to the fateful February 14 meeting. This was it: the final yes or no. It would be the hardest meeting yet. The plan had been narrowed and the group decided what the X-Box wouldn't be. Now it was taking away some of the things that the executives thought would be in the machine. All previous meetings determined whether Project X-Box would keep going or be killed. "This one," says Fries, "was get killed or put Bill on stage."

Allard sums up the challenge facing the group: "We were selling a new product concept and a new playbook. A totally new business model. We're going to have inventory. No PC compatibility. No start button. There is a phase where you expand all of the possibilities, and then start narrowing it down to make it work. Now we had to explain this."

When Bill first heard that the X-Box wasn't going to be PC compatible, he supposedly (as the team implies) started leaning over the table at Allard, saying something to the effect of, "[Expletive]... let me get this straight... [expletive]... it isn't going to be PC compatible." Still, Allard and the crew wouldn't budge.

"This wasn't what Microsoft originally wanted," Allard explains, "but it is the right machine. Approve it or don't. We aren't changing it." About 9pm on St Valentine's Day (after several desperate phone calls to very perturbed significant others), Gates and Ballmer gave it the final okay. No more explaining or proving – it suddenly became time to make it happen.

Building the box

After getting the green light from Microsoft Employee #1, the group had to start turning ideas into realities. According to Bachus, "We pretty much talked to every possible supplier of chips until the final decisions were made." Oddly enough, the one thing that really made the package come together at the right price was the extreme competition between hardware vendors. The competition (something the DOJ says Microsoft is stifling) drove prices down so that the X-Box was able to get the best components and hit a price point acceptable to the massmarket (between $200-$300). ▸

Name:
J Allard (aka Minister of Soul)

Position:
General manager, Platform and Thirdparty

What exactly it is you do:
Make game developers heroes

Background:
First games company at 14; skated in Boston for four years (college); started Internet work at Microsoft (1991-DOJ deposition); returned to gaming roots as part of Team X-Box (1999)

Career high point:
Trip Hawkins telling me in '86 that I was so wrong to believe that 3D games would be big some day

Most embarrassing moment:
Having Seamus beat me at *Robotron*

Lesson learned:
The only legitimate use of a CPU is for games

Catchphrase:
'Go big or go home.' (Also: 'Don't lift')

If you weren't a high-profile figure in the games industry, you'd likely be:
Professional skateboarder, rave DJ, paparazzo, Krispy Kreme franchise owner, Airwalk shoe designer, or F1 driver



Name:
Kevin Bachus

Position:
Director of thirdparty

What exactly it is you do:
Hijack the resources of a $365bn company in the service of game publishers everywhere

Background:
Worked in the games industry for 15 years, with detours into the film industry and computer journalism: five years developing games on my own, three years at Ziff-Davis, three years at Mindscape, three years at Microsoft, 1.5 years at X-Box, Inc

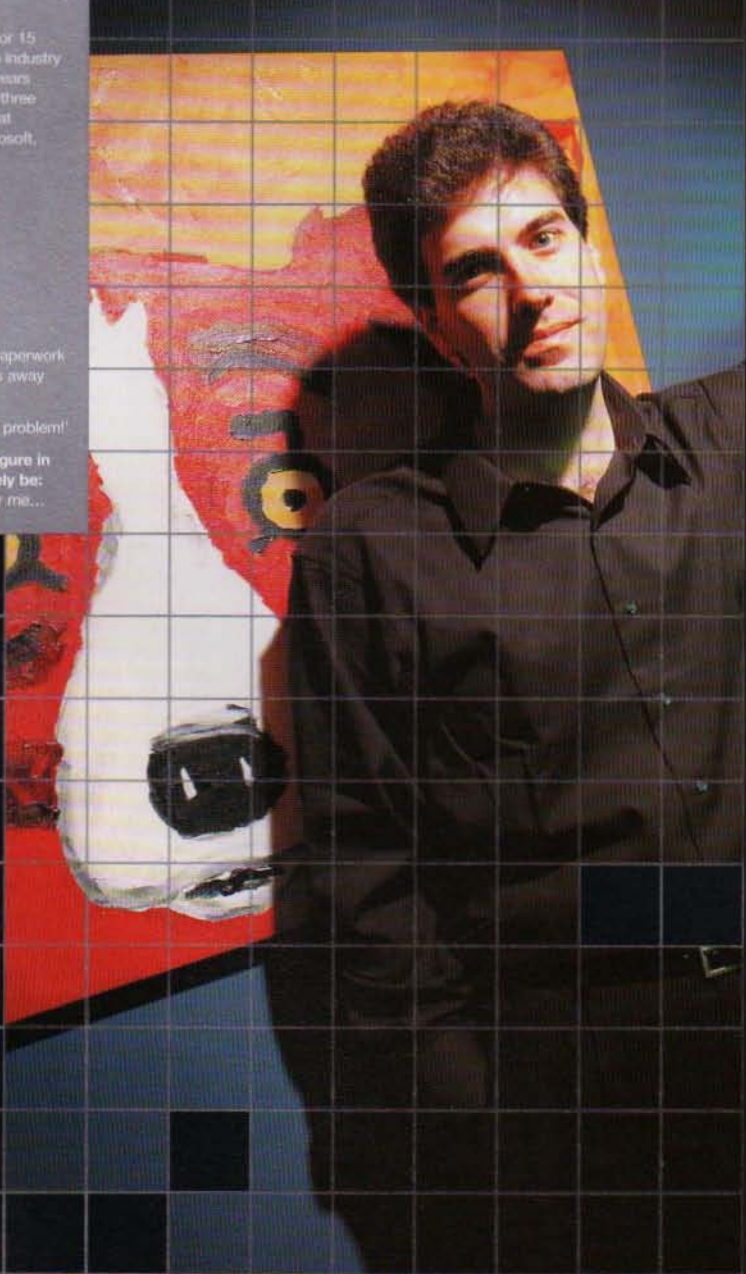
Career high point:
X-Box, baby!

Most embarrassing moment:
Trying to talk my way through Japanese customs with five hand-built X-Box prototypes

Lesson learned:
Never forget the all-important paperwork sitting on your desk 3,000 miles away

Catchphrase:
'No surprises, no absolutes, no problem!'

If you weren't a high-profile figure in the games industry, you'd likely be:
Editor of **Edge**. Whew, lucky for me...



But the driving force behind every decision on the hardware for the X-Box was what kind of effect it would have on the software. Blackley goes as far as to say: "We are building hardware out of necessity. What does the consumer want most? Good games. How do we get that? By giving the developers all the tools and hardware they need to do this."

"Developers and publishers told us what they wanted," Blackley says of the initial process. "Being software developers and publishers, we are in a unique position to provide support and insight. Essentially, the X-Box is a big software business, with this unfortunate hardware aspect we had to learn how to deal with. We are making a console for software. We are a software company. We listened to game makers and they helped evolve the plan."

When the group began to expand, the realisation dawned that the Microsoft Redmond campus had the resources to handle the whole project. "Is there another company in the world that could do this? I don't think so, because it takes a bunch of different pieces, especially the software. The marketing. Developer support. Worldwide sales and distribution," reels off an amazed Fries.

As **Edge** toured the facilities, it became quite apparent that Microsoft does have plenty of apparently unfair advantages. The combination of talented, experienced people, incredible resources and a hands-off approach by management enabled the X-Box team to build its dream machine as and when it wanted. Got an idea for a new controller? Just give creative director Horace Luke (a one-man design monopoly if ever one existed – break him up before it's too late) a call, and he'll sketch it out, render it in 3D, carve it up, and have a plastic prototype in your hands by the end of the day. For most other companies, that whole process could take anything from two weeks to a month. Here, not even a single day.

The one world-changing element of X-Box is its 8Gb hard drive. "On the PS2, you can do a totally photorealistic room," says Fries, "but once you go through the door, the memory is gone. Then you have to go to a DVD drive with 500 milliseconds of access time. It [the PS2] is made for movies and music, not data retrieval. On the X-Box, you can load data on the intermediate cache (the hard drive) and get a much more acceptable ten-millisecond access time."

Combine the extra memory with the 733MHz processor, 64Mb of unified RAM, the reportedly amazing NVidia graphics card, and the 256-voice sound card, and it's easy to see why developers, industry experts and gamers are getting legitimately excited about the prospects of Microsoft's machine.



An X-Box demo unit in action on a realtime sequence from Kuju Entertainment (see p52)

Getting the look

As creative director, Horace Luke is responsible for the look and feel of everything X-Box. He and his team of seven designers/sculptors/3D modellers/gamers design the controller, the box, the letterhead, the logo, and even the little trinkets they pass out to ungrateful journalists. The biggest task, naturally, was coming up with the system and the controller. Essentially, the X-Box team got together and brainstormed, figuring no idea is a bad idea. The weird, the sublime, and the plain ugly are produced in a fit of total creativity. Then the team has to pull back and turn the machine and controller into something realistic, cost effective, and with that unquantifiable 'x' factor.

"The gamepad is the face of your console," says Blackley. "It defines your interaction with the console. You have to look at what you need in the game and what consumers are looking for. It's critical to get that right."

While many people assume that the look of the X-Box won't be finished until much closer to launch, they are completely wrong: the X-Box and its controller are already near completion. (**Edge** knows because it was allowed to hold several mock-ups.)

Firstparty foundations

As head of the Microsoft Games group, Fries started four years ago with 100 people. The division has grown to employ a little over 500, and the plan is to add a further 200 internal people to the group in the coming year. According to Fries: "I'm shooting for 20 to 30 titles from firstparty in the first year, three to four times from thirdparties, and 100 or so titles throughout the first year."

The key job for Fries is creating a dynamic portfolio of games that will cover all the important categories and give gamers something to really lust after. "What matters is quality," he believes. "Quantity only matters to have a good variety. The key is to have at least one great game in every important genre."

Fries was less than impressed with Sony's E3 showing. "It's like the Saturn in a lot of ways: really hard to get to the main processor," he says of PS2. "Sony has great developers, and there'll be some good titles. However, if we make developing easy, then developers can spend their time making better games, not fighting with odd technology."

The two biggest concerns about Microsoft firstparty software are the fact that the company has never done a console game, and that it doesn't have any firstparty Japanese developers. The first concern shouldn't really be relevant, because Fries and his team completely understand the difference between console and PC games, and their experience developing for the PC will



Name:
Horace Luke (Hey, Design Guy!)

Position:
Creative director

What exactly it is you do:
Design-o-rama. I design almost anything and everything that has to do with X-Box. Basically, I have the dream job of every 15-year-old kid.

Background:
A bit of this, a bit of that. I came from a background of image and brand design for a number of large projects and companies around the world. You can say I tried the buffet of careers!

Career high point:
I don't think anything will beat our launch next year. The question will be, 'How will I be able to top the X-Box launch?'

Most embarrassing moment:
Interviewed for a job in front of a group at Microsoft in 1991... with my fly open. Needless to say, I didn't get the job then!

Lesson learned:
Happiness is what life is all about

Catchphrase:
'What's X-Box's secret sauce? Yo!'

If you weren't a high-profile figure in the games industry, you'd likely be:
Some dotcom guy or a venture capitalist's thinktank guy



Name:
Ed Fries

Position:
VP, Games Publishing

What exactly it is you do:
I run Microsoft's firstparty games business for PC and X-Box (read: I play games for a living)

Background:
Spent ten years working on *Excel* and *Word* to make the world more productive. Realised the error of my ways and am now desperately attempting to undo the damage by making everyone seriously unproductive.

Career high point:
Creating the 'Fish!' screensaver for Berkeley Systems' *After Dark*

Most embarrassing moment:
Admitted creating the 'Fish!' screensaver in a major games magazine

Lesson learned:
Loose lips sink ships

Catchphrase:
'If your job isn't fun, you're not doing it right'

If you weren't a high-profile figure in the games industry, you'd likely be:
A starving poet. The problem is, I can only write limericks:
We all liked the Sony
PlayStation,
And the Dreamcast caused
quite the sensation.
But when it comes to great
games,
Forget those other names,
X-Box is the next generation



Halo **looks like being one of X-Box's first major titles. It will also reach PC, though**

be a huge advantage in getting the most out of the X-Box. The second concern has been addressed with the opening of a Japanese firstparty development arm in Japan. Fries intimated that Microsoft had hired 'a very high-up guy in the development community of a major Japanese console publisher with some great design credits to his name'.

Because the system is still well over a year from launch, Microsoft didn't share many specific titles, but it's known that Microsoft's sports lineup (*NFL Fever*, *NBA Inside Drive*, *Microsoft Baseball*) have all been in X-Box development for some time. Microsoft realises that every single winner in the console market has had the best sports games – this isn't a coincidence. Other Microsoft PC games will come over to the X-Box, but only the appropriate titles. "We don't want PC games on the X-Box," says Fries. "If we bring over *Motocross Madness 2*, we'll spend a year on the game making sure it takes full advantage of the X-Box. Certain PC games just won't translate to the console, like flight simulators and realtime strategies, and we won't try to make them work."

Thirdparty concerns

Crucial to the success of X-Box will be a strong thirdparty lineup. Since X-Box is a US-designed game system from an American company, will Japan's development community support it? "Conversations with Japanese companies don't go like that," notes Bachus. "They are interested in making money. They want to know our distribution model in Japan. But no one has said, 'You're not Japanese and we can't work with you'." Without naming names, Bachus confidently asserts that: "The X-Box will have plenty of support from big-name Japanese publishers."

One of the biggest fears surrounding X-Box is that PC companies will simply port over their titles, but Bachus isn't worried. "There is concern about direct ports, but when you talk to a publisher, they say that that's death for a franchise," he says. "If a company is going to produce their racing game for PC and X-Box and make them identical, but their competitors target the X-Box, then the competition will look better, play better, and damage their franchise – giving their competitors an advantage. A good franchise requires focus for every platform it's released on."

What kind of games will appear on X-Box? Microsoft is adamant that the console isn't a PC Jr. Initially, a very focused, limited amount of titles will be aimed squarely at the target customer for the X-Box: 18-year-old console gamers. There will be some risks, and unusual things that will push the envelope creatively, but the core games will be very much what you would expect from a console launch (fighting, RPG, racing, sports, etc).

But is Microsoft too focused on being

another console maker? Is it afraid to redefine what a console game can be?

"We're trying to let you know that we get it," refutes Blackley. "A big rule in talking to developers is no surprises. We want to tell them everything and we want to learn what they want to do so we can help them. We haven't set any steadfast rules on what can or can't make it to the X-Box. We'll decide on a case-by-case basis. We absolutely want to have innovative games."

Exploring online avenues

Everyone knows online gaming is the future, but when is it really going to happen? Microsoft is including a broadband connection and a hard drive with X-Box, but even it believes that the Internet revolution in console gaming remains some way off.

So what kind of multiplay should you expect from X-Box? "Depends on the game," Bachus suggests. "Ideally, we'd like both splitscreen and online, but it's very difficult. Some games lend themselves to online play, while others are better for four guys on a couch and one TV."

Initially, X-Box will see more splitscreen games, with online additions. Over time there will be more hybrids, and eventually there will be games that are designed for online play. "We are working with a few companies to figure out how to do online right, and find a killer app," Bachus declares. "Anyone who says that they understand how console games are going to work online at this point is a fool."

Just because Microsoft understands the situation doesn't mean there aren't big plans to incorporate online games.

"From a gaming perspective," says Allard, "we're coming upon a big change. Network gaming will redefine the medium. Five years from now a solitary game just won't be interesting. The gaming industry is going mainstream and Microsoft needs a wake-up. We redefined the way people did work; now we want to change the way people play."

But what about games?

X-Box's future is clearly a bright-looking one, but plans generally don't look flawed until after the fact, as Bachus acknowledges: "If I knew we were forgetting something, then we wouldn't forget it. I'm sure there will be some small thing we wish we'd have done differently the day the system launches, but we're extremely confident that we've made the right choices and provided developers and gamers with an amazing new gaming console." The only X-Box issue currently unclear is the small matter of games, and ultimately they are the only things that really matter. What's reassuring, though, is that during **Edge**'s visit it was X-Box's creators who pointed this out.



Name:
Chanel Summers

Position:
Audio manager, Advanced Technology Team

What exactly it is you do:
Help create audio that's so mindblowing, X-Box gamers forget all about the graphics!

Background:
Joined the games industry in 1992. Worked as a producer and game designer. Switched to audio. Never looked back

Career high point:
Launching 'DirectMusic', ushering in the era of interactive music!

Most embarrassing moment:
Getting caught with my pants down in **Edge**

Lesson learned:
Never tell a journalist about your new tattoo

Catchphrase:
'Audio is more than just wallpaper in a game'

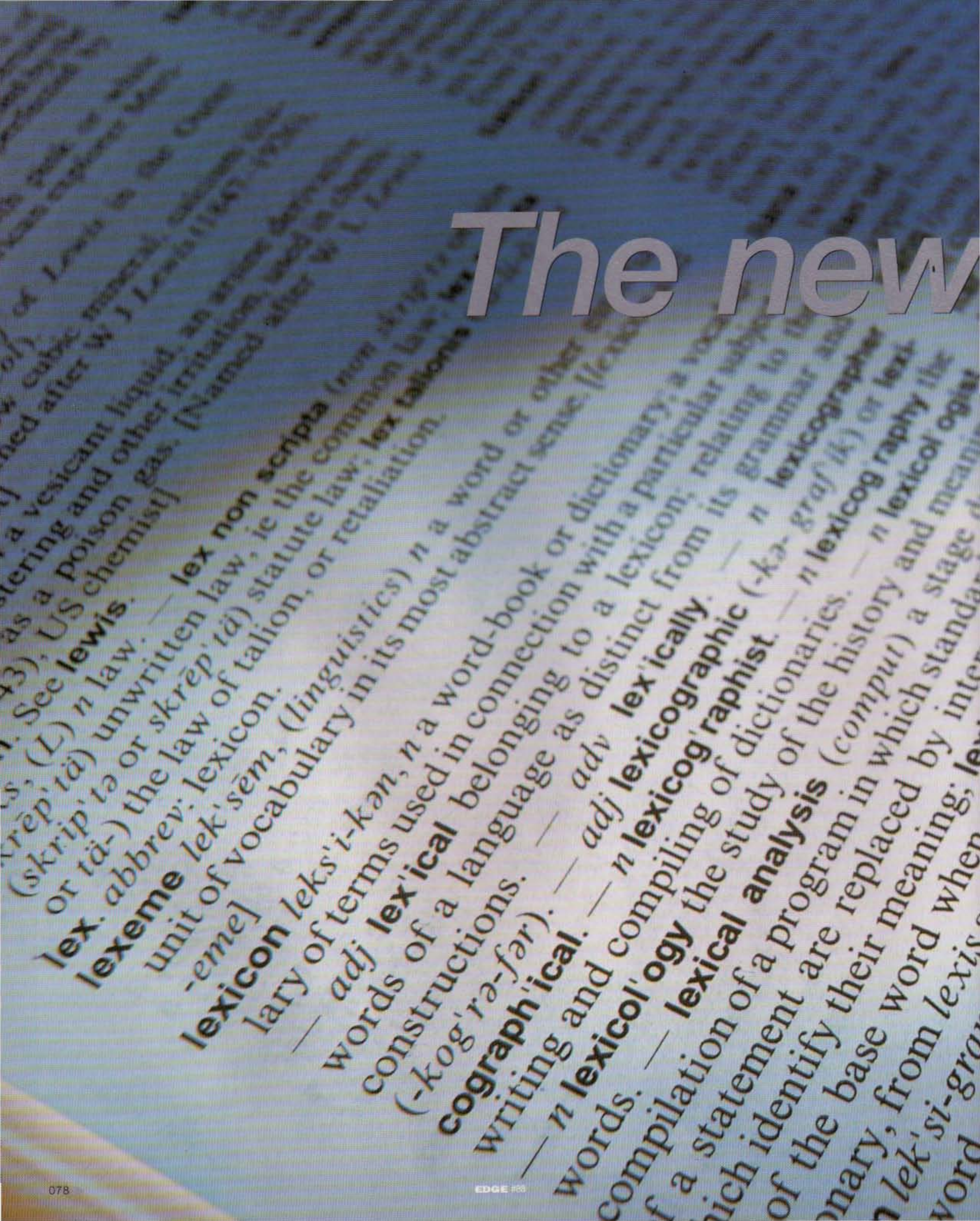
If you weren't a high-profile figure in the games industry, you'd likely be:
The new guitarist for Veruca Salt

The specification and feature differences between PlayStation2 and X-Box

As PS2 is the most advanced game console currently available, Edge set up a side-by-side comparison of the specs and features of Sony's console and X-Box

	PlayStation 2	X-Box	
CPU	300MHz MIPS	733 MHz Intel	X-Box has a faster processor. Also, by using PC architecture and tools, developers don't have to relearn coding methodology to work with the machine.
Graphics processor	150MHz Sony GS	300 MHz custom-designed GPU developed by Microsoft and nVidia	In theory, the NVidia chip will be the single most advanced graphics processor in existence, enabling jaw-dropping gaming experiences to be created. However, the chip isn't finished yet, and at this point it must still be considered vaporware.
Memory	38Mb (total)	64Mb Unified	Sure, more RAM is better, but what's really exciting is X-Box's unified memory, which enables developers to put memory where it's needed, when it's needed
Memory bandwidth	3.2Gb/sec	6.4Gb/sec	Pretty simple, really: faster bandwidth means faster access, more efficient games.
Claimed full-feature polygon performance	20m/sec	150m/sec	Sony's claim now appears overblown; Microsoft's may well be overestimated, too.
Particle performance	150m/sec	150m/sec	No advantage here, but X-Box manages to at least match PS2.
Simultaneous textures	1	4	Pushing polygons has always been the processor measuring stick, but textures are what make games come to life. More simultaneous textures means more detailed-looking images onscreen at the same time.
Compressed textures	No	Yes (4 to 1)	The biggest limit on the PS2 hardware is pushing textures through the VRAM. X-Box has a huge texture advantage, since developers can essentially store four times the amount of textures with very little loss in quality.
Full-scene anti-alias	Yes	Yes	Smoothed-out jaggies is a hardware feature on both formats, but using it on PS2 results in a performance drop elsewhere that most coders simply will not tolerate.
Storage medium	4x DVD, 8Mb memory card	4x DVD, 8Gb hard drive, 8Mb memory card	This is where X-Box really outpaces PS2. The 8Gb hard drive gives developers an intermediate scratch disk to load audio, textures, and anything else they want. The access speed of a hard drive is five times faster than a DVD and allows the developers a quick backup to the RAM. Sony is offering a hard drive as an add-on, but because every unit won't have a hard drive, developers may not support it fully, resulting in less expansive experiences.
I/O	Game controller x2, USB, 1394, PCMCIA	Game controller x4, USB, Ethernet	This is where you see the difference in the ideology behind the machines. PS2 is set up to be an entertainment machine, while X-Box is set up to be a gaming console. The additional hookups are handy for the entertainment centre, but Microsoft chose four controller ports because that's simply better for games.
Audio channels	48	256	More channels mean richer audio, an element soon to be fully explored in gaming.
Positional 3D audio support in hardware	No	Yes	If you've never heard a game in 3D with all of the effects on, you need to.
Broadband	Future upgrade	Yes	Expensive peripherals are a dicey proposition: they shrink the potential user base and developers frequently don't support them. Broadband gaming may not be here yet, but when it is, X-Box is fully equipped to handle it.
Modem enabled	Not planned	Optional	A USB modem will be sold separately at launch for X-Box owners who don't have access to a broadband line or don't want to pay the higher fees. This could split the market, but it's likely that the modem option will be undersubscribed anyway.
Maximum resolution	1,280x1,024	1,920x1,080	Both have more than enough resolution capabilities for today's TVs, but the advancing technology of TV (HDTV, etc) ensures display future proofing.
HDTV support	Limited	Yes	If you own an HDTV or plan to, X-Box games will look much better on it.
UK launch date	October 26, 2000	Autumn 2001	To be a year later than PS2 means that X-Box must be a superior and the difference must be noticeable at a glance.

The new





language of videogaming

As the videogame industry advances on the crest of a technology wave, so the language that describes it is developing. Edge defines the 75 terms that are key to tuning into the pertinent thinking in the field

Like Jamaican patois, Parisian argot or good old cockney rhyming slang, technology nurtures its own lexicon as the ideas people want to communicate (or even obscure) develop. The transition from 16bit to 32bit, the rise of 3D graphics and the arrival of multimedia and Internet connectivity all changed videogames – and the language used to describe them. Initially, journalists and gamers struggled to get their mouths and heads around terms like polygons, textures and firstperson-perspective shooters. But now schoolkids insult each other's favourite titles using the self-same phrases.

Five years later, both the jargon and the technologies are commonplace, and some people say such a leap will never happen again. They're wrong. The evolution of computer graphics continues apace, and is being spiced up by the Internet, mobile phones and even Microsoft's entry into the games hardware business. All are changing what people say as much as what they play.

Some terms, such as multipass rendering and motion blur, refer to an evolution in techniques that first appeared back in *Wipeout*'s day. But others, such as always-on Internet connections or synthesis cite technology with the potential to change videogaming forever.

You can learn a lot about a culture by its language. This is the next-gen lexicon according to **Edge**: make of it what you will.



Unreal Tournament

Instead of having to attempt connection to your ISP every time the *UT* urge strikes, an **always-on** connection would offer you instant access.



Creatures

Creatures – a breed-your-own-monster game – was Cyberlife's first attempt at **artificial life**. More than 500,000 users bought into the concept.

ADSL *(Internet)* Asymmetric Digital Subscriber Line (ADSL) is a broadband technology that enables you to get more out of the copper phone wires heading into your house. Installing an ADSL box and connecting to an ISP that supports ADSL could theoretically get you connection speeds tens of times faster than an existing modem – and it's 'always-on'. But BT has only committed itself to supporting around 512Kbps to begin with, and it keeps delaying ADSL. The service will cost around £40 per month when it arrives.

Always-on *(Internet)* Instead of dialling your ISP whenever you want to check your email, browse the Web or play *Unreal Tournament*, an always-on connection is – hold on to your hats – always on. You pay a flat monthly charge and are connected 24 hours a day. Broadband connections via ADSL or cable modems are generally always-on.

Artificial intelligence *(AI)* The science of constructing artificial systems that exhibit intelligence in some form is called artificial intelligence (AI). In this context, intelligence is usually very specific, so a computer program that plays chess can be considered artificial intelligence. AI tends to involve top-down-specific systems that exhibit 'intelligence' in a very narrow field of application rather than building general-purpose problem solvers (which are currently more the domain of artificial life systems).

Artificial life *(AL)* A hard and fast definition of artificial life (A-life or AL) is difficult to formulate (and several answers could be classed as right enough). The accepted definition is: artificial life is the creation of lifelike behaviours by using large populations of simple autonomous objects (called agents) that, when combined, produce more complex emergent behaviour, where none of the individual objects knows anything about the overarching activity that occurs. Because lifelike behaviour is the goal, the process is called artificial life. Many metaphors and concepts used in artificial life are derived from nature (such as cellularity, biochemistry and genetics). The field of AL is rich in buzzwords, including areas such as genetic algorithms, flocking systems and agent-based programs. The philosophy behind AL shows great potential for managing complex virtual environments. The *Creatures* series from Cambridge-based Creature Labs has already introduced complex artificial life theories to gaming.

Attenuation maps *(3D graphics)* An attenuation map is a more powerful method of describing the light falling on a 3D scene then a traditional light map. It enables per-pixel point lights and spotlights, and can give the effect of a gradual falling off in shadows.

Bezier curves *(3D modelling)* A cubic bezier curve is a simple curve, typically with a peak and a trough, and defined by a cubic polynomial function with four control points. Changing the control points changes the peaks and troughs of the curve. By plotting the control points in 3D space, you get a 3D cubic bezier curve. Bezier curves are sometimes plotted with just three control points to produce a quadratic bezier curve.

Bezier patches *(3D modelling)* This term generally refers to a higher-order surface defined by four cubic bezier curves. There are also triangular bezier patches, such as DirectX8's N-patches, which are made from three curves.

Bluetooth *(hardware)* Created by an international consortium of big telecommunications and electronics companies, Bluetooth is a standard designed to enable devices to 'talk' to each other without wires, using short-range radio. In the future you should be able to send information from your mobile to your laptop

or from your MP3 hi-fi to car stereo with ease, thanks to Bluetooth. It could also lead to devices that automatically communicate with each other as you move through an environment, say, in your car.

BRDF *(3D graphics)* Bi-directional Reflectance Distribution Functions (BRDF) are a mathematical way of producing the visual effect of light falling on to an object without working out the physics of light interacting with matter. BRDFs range from those of matt materials such as cardboard, which scatter light equally in all directions, through variously shiny objects and up to a perfect reflective mirror. Fur, hair, and materials like velvet benefit from this technique, as do some metallic surfaces, such as gold.

Broadband *(Internet)* A modem technology with a much larger capacity (and thus faster data transfer rates) than the modems found in today's PCs or Dreamcast (bestowing the latter the label 'narrowband'). A broadband network is a telecoms infrastructure that supports a particular broadband method – the cable television network, for example, or the installation of ADSL routers at local telephone exchanges. You typically connect to a broadband network via a broadband modem such as an ADSL or cable modem, and a common network interface like an Ethernet port or USB connection built into your PC or future console.

B-splines *(3D modelling)* Basis splines are a special way of defining parametric curves, as used in NURBS rendering. A B-spline is a curve, like a piece of string. A B-spline patch is a surface made up of B-spline curves.

B-spline patches *(3D modelling)* The parametric surface function used in the course of NURBS rendering.

Bump-mapping *(3D graphics)* An object can be made to look more detailed without using more polygons via bump-mapping, which simulates small height variations on the surface of an object by changing the way the light effects are calculated. The process works due to the fact that a bump will usually have one side that is bright from a light source while the other side – the side in shadow – is dark. Realtime bump-mapping is now supported in most PC 3D hardware and on Dreamcast.

Cable modem *(Internet)* A broadband technology that takes advantage of the huge capacity of the cable television networks already wired into many homes. Much faster than standard modems, although mooted speeds are variously quoted from 256Kbps up to 2Mbps. Since a street of homes is typically connected to a 'loop' in the cable network, the local capacity is shared with your neighbours, and so download speeds can vary depending on how many homes are using the service at the same time.

Catmull-Clark patches *(3D graphics)* A type of subdivision surface, co-created by Edwin Catmull – one of the founders of Pixar – and popularised by the company in the movie 'A Bug's Life'. Often confused with Catmull-ROM splines, which are curves that describe a path through space and are usually used for motion control. Incidentally, the talented Edwin Catmull was also behind the concept of texture mapping.

Community "There is no such thing as society, only individuals," Margaret Thatcher once intoned. Similarly, cynics might argue that there's no such thing as a community in online gaming, where cheating and player killing is rife. Nevertheless, the notion of creating a persistent 'home from home' on the Internet remains the driving force in online RPGs. In a saturated marketplace, the benefits to developers of creating a community are obvious – gamers



A Bug's Life

Pixar founder Edwin Catmull co-created the **Catmull-Clark patch**, a variety of subdivisional surface popularised in the company's box-office hit.



Ultima Worlds Online: Origin

Origin will take the concept of a **community** to its next level by presenting gamers with a persistent universe. Many more me-too worlds will follow.

can buy another game, but they can't buy or transfer the friends they've made.

Convergence *(Hardware)* The idea that multifunction devices will replace a set of one-shot products. For instance, the PlayStation2 sees the convergence of DVD movie watching and gaming. Proponents say the confluence of digital TV, the Internet and high-powered games consoles make the economics of convergence unanswerable. Opponents retort that technology gets ever cheaper (making convergence unnecessary), that dual function devices seldom perform as well as two specific ones (witness PS2's DVD playback), and that, after 20 years, we haven't even seen the convergence of the television and the video recorder.

Curved surfaces *(3D modelling)* Originally created to help the car industry model rounded shapes, curved surfaces are now finding their way into videogames. Id Software's *Quake III: Arena* was one of the first to use them in realtime. A curved surface is described by a set of curves, themselves defined mathematically with polynomial functions. Various kinds of functions can be used to describe these curves, such as bezier, hermite, quadratic, etc. Several curves are combined to produce a surface known as a 'patch'. A patch represents a portion of a 3D shape; patches can be stitched together to make entire 3D models. Before the curved surface is displayed it is converted into a traditional polygon model. The advantages of using curves are that they can lead to fantastic and speedy results, they take up less space than highly detailed polygon models, and they can be used to create scalable geometry. Unfortunately, they're also more difficult to program.

DirectX *(X-Box)* Bringing order and a measure of consensus to the disparate tribes of the PC community was no small achievement for Microsoft's DirectX teams. (Only a few years ago, developers were cursing the API and swearing to program in OpenGL, 3Dfx's Glide or even bypass *Windows* altogether). However, DirectX has since achieved an even greater level of importance with X-Box. Microsoft has been able to point to a readymade and well-known development platform for its new machine – an advantage no console debutante has ever boasted before.

Dynamics *(Physics)* The branch of physics programming that deals with the interactions of forces and rigid bodies. Developers often use the word as a fancy alternative to 'physics'. Closely related to kinematics, which looks at the movement of bodies over time.

DVD *(Hardware)* High-capacity optical media used by PlayStation2, Nintendo and X-Box. DVD (once understood as Digital Video Disc, now Digital Versatile Disc) grew out of a consortium of manufacturers looking to take CD technology to the next level. DVD can store up to 4.7Gb in its basic version, but also comes double-layered and double-sided (like a vinyl LP) – which, obviously, is capable of storing more information.

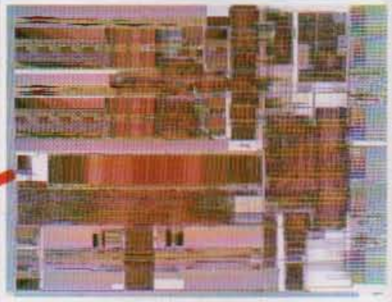
Emergent systems *(Artificial intelligence)* Simulations that exhibit behaviour and functionality that is not specifically defined and programmed by the simulation are known as emergent systems. The general approach of artificial life relies on emergence to create complex behavioural responses out of small, simple systems, where behaviour emerges spontaneously.

Emotion Engine *(PlayStation 2)* The CPU of PlayStation2. It's just a maths processor like any other, and only the hype has made anyone cry so far – as per Sony's promise when the CPU was announced.



Quake III: Arena

Id's latest instalment of its hugely successful firstperson series features **curved surfaces** which serve to deliver a more organic-looking gameworld.



Emotion Engine

Instead of giving its new CPU a nondescript label, Sony called its PlayStation2's heart the **Emotion Engine**. Has it made any **Edge** reader cry yet?



Gran Turismo 2000

Reflective surfaces in games can be generated via **environment mapping**. In *GT2000* it's possible to see mirrored images of your own car on others.



Faster data transfer to mobile phones

General Packet Radio Switching could see the data transfer rate to mobile phones equal that of current PC modems, presenting a new raft of opportunities.

Environment mapping *(3D graphics)* In games, this typically involves applying a generic texture (such as 'world' or 'sky') to an object to give the appearance of a reflective surface. The effect is also often faked, as in *Gran Turismo*. Ideally, the actual environment would be rendered in realtime (see reflection mapping). Can be combined with transparency effects to mimic windows and other glass objects.

Episodic *(Misc)* Instead of coming complete in a box, some argue that games should be delivered in smaller portions via the Internet. At its simplest, this could simply involve cutting games up, as is done by the free games site freeloader.com. More interestingly, games could be divided into 'episodes' and updated at regular intervals – say every Thursday night. Keen gamers across the country would then play the part of the game on the same night and talk about it the next day, like a soap opera. Similarly, episodes could be tied into real-life events. Games might be paid for by advertising, per play or even bought as a channel of packages, similar to today's satellite deals.

G3 *(Mobile phones)* Third-generation mobile phones (G3) will arrive in 2002 to take advantage of UMTS. They are expected to have colour screens rivalling handheld games consoles, enabling them to access movies and music and act as videophones. One thing is already certain – they'll also cost a fortune.

Genetic algorithms *(Artificial intelligence)* Just like any other computer program, genetic algorithms are programs made up of a number of different commands. However, the sequence of commands in a genetic algorithm is called the 'genome', and each and every one of these can be randomly mutated to create a different algorithm. By breeding millions of these algorithms, and measuring the 'fitness' of each one against the standard of the required result, it is possible to use natural selection and evolution to breed a program that solves a problem.

Giga *(Hardware)* A gigaop is a measure of the number of operations that a processor executes per second. One gigaop is thousand million operations (an American billion). Similarly, a gigapixel's graphics chip can fill a thousand million pixels per second. Gigabytes have already replaced megabytes as a measure of hard disk capacity. Next stop, the terabyte – which consists of one million million bytes.

GPRS *(Mobile phones)* General Packet Radio Switching (GPRS) is the next big leap forward for the mobile Internet, due in 2001. It could double the data transfer rate of High Speed Circuit Switched Data to match the speed of PC modems, allowing faster access to WAP Web pages for people using mobile phones.

Haptic interface *(Hardware)* Machines that are controlled by a human hand according to the force it applies. Most commonly used in virtual reality and robotics, these are usually two-way interfaces in that they give feedback to the user about the object being manipulated such as mass and applied forces. An example is an advanced virtual reality glove that enables you to 'pick up' 3D objects and place them elsewhere onscreen.

Higher-order surfaces *(3D modelling)* The result of describing a 3D model mathematically, most commonly using curves.

HSCSD *(Mobile phones)* High-Speed Circuit Switched Data (HSCSD) increases connection speeds to the mobile Internet via a WAP mobile phone to 28Kbps. Should arrive by the end of 2000.



Mario

Nintendo's flagship icon is the ultimate slice of **IP**. The company has made millions from licensing his image for use on toys, clocks, pillows and beyond.



Legend Of Zelda: Ocarina Of Time

The inclusion of **interactive music** in games such as *Zelda* (as dusk falls) and *Mario 64* (when Mario approaches water) is a growing area for designers.

HTML | 084 | LOD

HTML *(Internet)* Hypertext Mark-up Language (HTML) is the language used to describe the Web. It's HTML that defines what pages look like and the hyperlinks that enable you to browse from page to page. Prescient developers are looking to incorporate HTML into their games, and some of the big graphics packages have suggested they will support HTML links in game art models.

IDTV *(Hardware)* Interactive Digital television (IDTV) rolls out in the UK later this year, and cable companies such as NTL are already readying a range of games to accompany it. Current non-digital titles are limited mostly to quiz and card games, but the companies claim that future boxes will support more advanced games and link into TV shows using streaming video and sound.

i.Link *(PlayStation2)* Sony's name for IEEE1394, the powerful standard for connecting consumer audio/visual devices to PCs that was invented by Apple (and called Firewire). IEEE1394 offers a high-speed transfer rate (up to 200Mbps) through pretty cheap hardware, and supports hot plugging so you can simply stick your digital camera into your computer or PlayStation2 without restarting. Convergence, you cry?

Interactive Music *(Sound)* Music that changes in tempo, pitch or even to entirely new phrasing depending on what happens in the game is termed interactive or realtime music. For a beautiful and simple example of interactive music, pay attention to how the tune changes when Mario approaches the water to swim during the course of *Mario 64*. More advanced forms of interactive music might weave new strands into the score when certain characters appear (such as Darth Vader's signature tune in 'Star Wars') or grow more frantic and discordant as time runs out in a puzzle game, lending a further cinematic element to videogaming.

Intellectual property *(Misc)* In game terms, intellectual property (IP) consists of the products that a developer creates and that it or its publishers hold the rights to. Game names, characters, design and implementation are all IP. Usually protected by copyright laws, the critical exception has traditionally been 'ideas'. A developer can invent, say, sideways scrolling, and its particular implementation in that game can be copyrighted, but only a patent protects the actual concept. Traditionally, patents have been very difficult to obtain but there are signs that this state of affairs is changing – with potentially drastic and restrictive results. In any event, IP plays an increasingly important role in games, with publishers often signing products because they believe the IP will be valuable in movies, toys, adverts or other games.

Kinematics *(3D graphics)* In graphics, a method of relating each joint in an animated figure to the limb it is attached to, making anything from walking to sword-fighting look more realistic. For forward kinematics, changes in the angle of a joint (an elbow, say) will produce changes in the end position of the connected limbs. Inverse kinematics (IK) looks at the end points of the limbs, then works back to derive the corresponding angles at the joints. It sounds straightforward but is mathematically nightmarish, so in game animation shortcuts are usually taken. (IK is also used in robotics.) See also: dynamics.

LOD *(3D modelling)* Level of detail (LOD) refers to the number of polygons making up a particular model. Since any computer or console can display only a finite number of polygons at an acceptable frame rate, the LOD of 3D models is carefully managed using a variety of techniques. Using low LOD models for distant objects and a higher LOD for those in the foreground has long been the standard method, but dynamically varying

the model's polygon count using progressive meshes is becoming more common.

Middleware *(PlayStation2)* Sony anticipated the difficulties of programming its PlayStation2, so it has teamed up with a variety of companies that offer engines for physics and graphics, as well as conventional art and sound packages. Sony terms these companies 'the Middleware layer' between the hardware and the developers, although it's worth noting that the term has been used in computer science (with a lower-case 'm') for years.

Mobile Internet *(Internet)* The Internet as seen by wireless WAP devices such as mobile phones or palmtops. Differs from the conventional Internet because current devices cannot read usual Web pages, only the WAP-enabled variety.

Morphing *(3D modelling)* By altering the position of a model's vertices in realtime, it can be stretched (or morphed) into new shapes.

Motion blur *(3D graphics)* If an eye or a camera is focused on a particular object, other objects moving speedily in relation to it will appear somewhat indistinct. For example, a photograph of a moving racing car will either show a blurry car or a blurry background. Motion blur is a technique that mimics this effect, either in hardware (such as in 3Dfx's latest chips) or else in software (it's commonly used in Hollywood animation).

Multi-pass rendering *(3D graphics)* With the proliferation of graphical enhancement techniques such as realtime lighting, bump-mapping, volumetric effects, and so on, the traditional realtime plot/paint/shade display pipeline has been modified. Graphics hardware now enables a surface to make several 'passes' through the pipeline, with successive techniques being applied to combine to produce the enhanced finished surface for display.

Non-linear *(Misc)* One of gaming's holy grails is to take gamers off the linear path that they're used to and instead let them choose how to finish a 'non-linear' story, where they decide how the plot develops by their actions. Current non-linear games tend to be sprawling and dull, due to the difficulties of creating excitement and tension in a non-linear narrative.

NURBS *(3D modelling)* Non-Uniform Rational B-Spline (NURBS) surfaces are higher-order surfaces defined using parametric curves. NURBS surfaces are really an extension of b-spline patches, which are themselves an extension of bezier patches. NURBS can be reduced to bezier patches for rendering purposes. NURBS surfaces are the method of choice for creating high-end animated movies in Hollywood, but they are computationally intensive, making realtime use in games difficult. For instance, many thought NURBS surfaces would be the technique of choice for PlayStation2, but so far traditional polygon modelling has prevailed, with most developers looking to the less-demanding bezier patches as a next step. Like all curved surface techniques, NURBS can be too rounded for some game artists' taste.

Patches *(3D modelling)* Bezier patches, grid patches, N-patches and the like are 3D surfaces that can be stitched together to produce 3D models.

Persistent *(Internet)* Games like *Sim City* are persistent, in as much as the world you create is saved ready for next time. But more important are persistent online games such as *Ultima Online*, where other players can continue to engage themselves in the persistent world while you're not connected. Future persistent games will probably



Stunt Squad

The *Renderware* engine that forms the basis of Criterion title *Stunt Squad* is a prime example of the **middleware** touted by Sony for PlayStation2.



Metal Gear Solid 2

The impression of **motion blur** is a trick used in games to give the feeling of speed or motion, and mimics the way the eye perceives a moving object.

support AI agents that look after your interests while you're offline, and links to email or WAP phones so you can be alerted to any emerging crisis.

Physics *(Physics)* Physics programming generally involves solving differential equations to discover how a set of variables react to each other and change over time. There's nothing particularly new about physics programming in games. Flight simulations have included physics models since the early '80s, while the '90s saw programmers such as Geoff Crammond applauded for the convincing physics simulations in titles like *F1 Grand Prix*. Even the PlayStation has seen games like that focused on physics, such as *Colin McRae Rally* (Codemasters' *TOCA Touring Cars* has inferior physics due to the need to simulate more than one car). However, with more graphics processing being handled away from the CPU, interest in complex physics is growing. Imagine if instead of going into an animation routine, the exact effects of a ten-foot fall on poor Mario were simulated. Or if blasting through the floor in *Quake IV* caused the ceiling to collapse on the individuals below. The potential of such daunting physics has seen middleware companies such as MathEngine spring up to offer physics engines to developers. Some developers say talk of truly realistic physics in games is nonsense, pointing out that even very simple balancing problems or fluid mechanics are computationally very intensive – and why simulate the sea accurately if the player is just concentrating on blasting the boat in front? Approximate methods are often sufficient since games are very tightly constrained; the laws of game physics need only apply to the main principles in the game, not the texture-mapped sun overhead.

Positional audio *(Sound)* Also known as 3D sound (and surround sound), positional audio involves creating a 3D soundscape where the volume and timbre of sounds varies according to the position of the listener – ie the player. For instance, if a weapon is fired from the top of a three-storey building 100 metres away, positional audio enables the listener to perceive it as such. Various Dolby methods are used in cinema, television and in some games, but it's not currently feasible to encode them in realtime, which limits their use in interactive content. Other methods have been explored by Creative Labs and Aureal (the latter now resting in peace).

Procedural textures *(3D graphics)* Instead of colouring and shading a 3D object using a hand-painted texture, the surface pattern can be described mathematically. By creating an algorithm to control this mathematical function, the appearance of the texture can be altered in realtime, as was done so successfully by *Unreal*'s engine to produce shimmering pools of water and similarly striking effects.

Progressive meshes *(3D modelling)* Instead of creating a various fixed resolution polygon model for use in games, developers can create one very high resolution model and then modify the number of polygons it consists of in realtime, as pioneered by Shiny's *Messiah*. Progressive meshing is an algorithmic technique that successively replaces two connected polygon edges by one edge, so scaling down the number of polygons in a model. The benefits of progressive meshing (also known as realtime tessellation) is you need to produce only one model, the meshes can be altered according to CPU power, and detail can be beefed up on demand – if you zoom in on a face, for instance. The main disadvantages are that texture mapping a changing polygon model is tricky and that no algorithm can yet produce an attractive low-polygon model as successfully as a human artist.

Programmable pipeline *(X-Box)* DirectX8



Colin McRae Rally

Physics engines strive to generate the impression of real-world interaction between objects. *Colin McRae Rally*'s engine proves especially believable.



Unreal Tournament

The appearance of **procedural textures** in *Unreal Tournament* delivers realtime graphical effects that bring a new dimension of life to the gameworld.



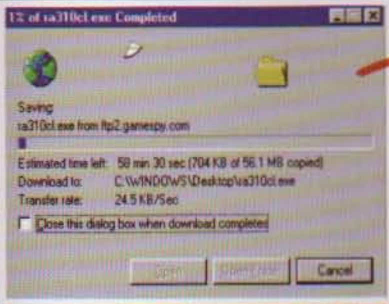
Messiah

Shiny's title pioneered the process of **progressive meshing**, whereby the level of detail on a model can alter in realtime according to the coder's whim.



Lara Croft

As videogame characters move further into the mainstream, interest is growing in **repurposing** their images and the technology used to generate them.





Quake III: Arena

Videogames enjoy a highly technologically-literate audience, many of whom get their hands dirty with mods, making them pioneering game **prosumers**.

sees Microsoft moving to a more flexible graphics architecture, which gives *Windows* developers greater control over the graphic effects in their games. The process of rendering and texturing within DirectX8 happens in a 'programmable pipeline', and it based around what Microsoft describes as pixel shaders and vertex shaders. The bottom line is that PC – and X-Box – programmers should be free to build whatever rendering engines they choose, without being forced to use straight polygons, patches, NURBS or any other process. Some leading developers had voiced concerns that Microsoft would bow to 3D hardware makers' demands to support specific methods of rendering. Now PC developers are already saying that the new shaders hark back to the good old days when every codeshop had its own signature rasterising techniques.

Prosumers *(Misc)* Middleware and cheap graphics tools could see gamers take a more active role in game creation. Such hands-on gamers are termed 'prosumers', a concatenation of 'professional consumers'. Level designers and *Quake* patch hackers are pioneer prosumers.

Quad patch *(3D modelling)* A type of higher-order surface made out of three quadratic bezier curves (possibly after Carmack). Others call such three-edged patches a 'tri patch', and reserve the name quad patches for patches with four edges.

Rational surfaces *(3D modelling)* Described by **Tom Forsyth** at Mucky Foot as "a freaky concept that's not easily explained," the term 'rational' is nonetheless frequently bandied about at development conferences and in interviews. Rational essentially refers to a particular mathematical treatment of curves. The bottom line is that using rational curves and surfaces offers more control. For example, rational bezier patches can describe conic sections such as spheres and rods, whereas non-rational ones cannot produce them perfectly, which is why Carmack used the former for his architecture in *Quake III: Arena*.

Realtime audio modelling *(Sound)* Instead of simply sampling a trundling vehicle, say, some developers are experimenting with building the engine out of layers of sound for the engine, gears, the wheels and so on. Eventually, sounds could be created according to physics models and the properties of the objects emitting the sound.

Reflection mapping *(3D graphics)* This technique enables objects such as mirrors or shiny cars to reflect the scene around them. Only recently has realtime reflection map rendering become a possibility. Many developers use the terms reflection mapping and environment mapping interchangeably.

Repurposing *(Misc)* Taking the intellectual property created for one media to another format. As the toolkits used to create games and movies converge, there could be a move towards developers creating super-high resolution models for FMV or advertising work, and then scaling down – repurposing – their models for games. In contrast, entirely different models and even software packages are used today for, say, the Lara Croft drink adverts, the in-game FMV, and the relatively low-resolution model.

Rigid bodies *(Physics)* A body with a set of properties or constraints (such as mass and shape) that do not change over time is termed a rigid body. Physics in games is almost always concerned with rigid bodies. More complicated bodies can be built out of smaller rigid bodies – for instance, a human being can built out of rigid arms and legs.

Scalable geometry *(3D modelling)* The huge variance in the 3D processing power of



Flight Simulator 2000

Simulations have always attracted a hardcore following, and it has reached the point where videogames are used in training for real-life events.



Perfect Dark

The audio dimension of gaming is set to get a huge boost with **surround sound** capabilities being implemented in games like Rare's *Perfect Dark*.

today's PCs has led developers to explore methods of scaling their graphics to match a consumer's system. Scalable geometry can be adapted in realtime to increase or decrease visual quality while maintaining an acceptable frame rate. Advanced levels of detail (LOD) techniques such as realtime progressive meshes employ scalable geometry.

Simulation *(Artificial Intelligence)* A simulation is an artificially constructed representation of something real, with an aim to simulate so that the real and artificial are as indistinguishable as possible. Simulations come in two varieties: emulations and models. An emulation is where the program pretends to be the something being simulated, whereas a model is where the program is the something. On complex simulations, models will always give the best results, as you do not need to code each and every response in the simulation.

Soft bodies *(Physics)* Used in high-end animation packages to simulate animation effects for materials such as cloth and hair.

Sticky *(Internet)* Internet surfers can leave a site as easily as they found it – how long they linger is a measure of how 'sticky' the site is. Very sticky sites hold the attention for long periods of time, although not all the best sites are sticky. (Search engines, for instance, typically send you to new sites, but you return to them repeatedly.) Addictive games can provide sticky content for Web sites and WAP phones.

Streaming *(Internet)* First used to describe music in the RealAudio format – which you can begin to hear even before the music file has finished downloading – there are now companies investigating streaming games. Current techniques basically 'trick' your PC into thinking that a remote file on the Internet is actually on the CD or hard disk. Gamers would pay per play for games, rather than buying a complete title in the shops. Games at today's sizes would require broadband modems to stream effectively. Streaming is also very important for live broadcasts, where there is no complete file to download at all, as the broadcast is ongoing.

Sub-division surfaces *(3D modelling)* As popularised by Pixar, sub-division surfaces differ from most progressive graphics techniques in that instead of reducing the complexity of a high-resolution mesh, a lower-resolution one is given higher detail. New vertices are successively added between existing ones to create new edges, until the desired resolution is reached. As more vertices are added, objects appear to become smoother and edges can appear curved. The key advantage of subdivision surfaces is that they are much more flexible than NURBS, and artists are already skilled at creating detailed polygon meshes.

Surround sound *(Sound)* Already familiar from the cinema, surround sound immerses a player within a 3D 'soundscape'. For example, you might hear a pack of dogs chasing you from behind or hear angry fans berate you from a certain section of the stand as you play football. PlayStation2 supports Dolby Surround Sound in its DVD player. True surround sound requires a multi-speaker set-up, but various software methods have been devised to fake the sensation from just two speakers.

Synthesis *(PlayStation2)* A woolly term popularly associated with Sony's PlayStation2, which essentially means the mathematical derivation of behaviours or effects with an algorithm, rather than the application of predetermined routines to give the appearance of such effects. For instance, you might generate a fractal landscape for a flight simulator rather than draw one by hand, or instead of running a

firework animation, you could use a particle physics system that simulated the explosion in realtime, leading to visually unique results. The vector units of PS2 are general maths crunchers devised to make synthesis a realistic proposition. But guess which method *FantaVision* uses?

T&L *(3D graphics)* Transform and lighting (T&L) is the process by which the co-ordinates of a 3D model are plotted in 3D space (transform) and then the effects of any light source in the scene on the model are calculated (lighting). Since it is so computationally intensive, up until NVidia's GeForce 256 card T&L was performed on the CPU. 'Hardware T&L' is when the process is handled by the 3D chip, freeing up the processor to concentrate on other intensive tasks such as AI or physics.

Tessellation *(3D modelling)* The algorithmic addition of polygons to a 3D model. Parametric surfaces (such as bezier patches and subdivision surfaces) are tessellated into lots of triangles for display.

Tweening *(Graphics)* Some art packages and upcoming graphics hardware can take a beginning, middle and an end position for a 2D image or 3D model and fill in the frames 'in between' – leading to the technique being termed 'tweening'.

UMTS *(Mobile phones)* The Universal Mobile Telecommunications System (UMTS) will be ready in 2002. It will be used by G3 mobile phones, which will take advantage of its 2Mbps bandwidth to download video and music on demand. Licences to use UMTS were recently auctioned by the UK government for more than £20bn to operators such as Vodafone and Orange.

USB *(Hardware)* The Universal Serial Bus (USB) is a flexible standard for peripherals that was originally created for desktop computers. Its chief advantages are that it's relatively fast (compared to the old serial and parallel ports) and that up to 127 USB devices can be added to a system. Now found in PlayStation2.

Volumetric textures *(3D graphics)* More accurately described as '3D textures', volumetric textures are textures with three dimensions. Instead of just a flat 2D texture, a volumetric texture consists of a cube of texels. Because the texture is a 3D cube, artists can make a wood grain or marble pattern run all the way through an object. If a player blows a bit off, the surfaces revealed will have the right pattern and match up at the seams. One drawback is that 3D textures devour memory – a single 256x256x256 16bits-per-pixel texture takes up 32Mb. 3D textures can be used efficiently in other ways. For example, you can make a 3D texture with a very small third dimension of, say, four slices, with a type of landscape in each slice. In the first 2D layer you put a sandy texture. In the second, grass. In the third, rock. In the fourth, snow. By texturing the landscape with the height of the landscape entered as the third co-ordinate, the mountain peaks are shown as snowy, the beaches sandy, and there are smooth blends between them. 3D textures are a general tool with many uses. Not much 3D hardware supports them yet, but it will.

WAP *(Mobile phones)* Wireless Application Protocol (WAP) is an industry standard for bringing a version of the Internet to wireless devices, such as mobile phones and handhelds. At WAP's heart is the Wireless Markup Language (WML) and the accompanying WMLScript. Content is encoded in WML and read on WAP mobile phones or other devices with embedded WAP browsers. Such phones cannot view standard HTML Web pages. Many developers, including Rage and UbiSoft, are working on WAP games.



Mr Dog

Transform and lighting represents the real computational spadework that goes into creating a scene such as this, by Infogrames' *Mr Dog* engine.



Wireless Application Protocol

The games industry is currently split over the development of titles for mobile phones that have **WAP**-standard browsers built into them.

Edge's review policy

Every issue, **Edge** evaluates the best, most interesting, hyped, innovative or promising games on a scale of ten, where five naturally represents the middle value. **Edge**'s rating system is fair, progressive and balanced. An average game deserves an average mark – not, as many believe, seven out of ten. Broadly speaking, scores correspond to the following sentiments: one: disastrous, two: appalling, three: severely flawed, four: disappointing, five: average, six: competent, seven: distinguished, eight: excellent, nine: astounding, ten: revolutionary.

Videogames on the **Edge**

Titles slowing productivity this month

Mario Tennis 64

Originally expected to go head to head with this month's excellent *Virtua Tennis*, Mario's version was delivered just too late for inclusion.



(N64) Nintendo

TOCA 2: Touring Cars

Reviewing *WTC* forced two **Edge** members to dust off the office's PS link cable and enjoy one of the best twoplayer racing experiences available on 32bit.


(PS) Codemasters

Perfect Dark

The premier firstperson experience continues to eat into precious sleep time, despite relaunch duties. Bin the lame storyline; lap up the revolutionary gadgetry.


(N64) Rare

Marvel vs Capcom 2

The staying power of this title is up there with *Soul Calibur* due to the sheer number of stages, costumes and characters to be unlocked – with better music.


(DC) Capcom

Truth (sometimes) hurts

As videogaming develops, so must reviewing

Correspondence indicates that the general consensus among readers is that **Edge** marks games harshly. If that's the case, then expect it to become still more severe.

This is inevitable, of course. By taking the apparently radical step of regarding five as the average mark on a scale of one to ten, which would correspond to a game that is reasonably entertaining without straining to introduce novel gameplay concepts or offer remarkable levels of playability and/or longevity, **Edge**'s scoring inevitably appears at odds with that of the majority of other publications.

As any true reviewing process is progressive, as games improve the overall average increases qualitatively, and scores subsequently come down. You'll therefore find that current games are scoring lower than if they had arrived at an earlier date. Timely examples are this month's *TOCA World Touring Cars* and *Grand Prix 3*. A year ago, these would have attained nine-out-of-ten scores with little trouble. Yet the racing genre has developed massively over the past three years, with a steady stream of quality releases. As such, an average racing game is no longer the dreary experience of a few years back – as either *Ridge Racer V* (below) or *Shutokou Battle 2* attest. Anything above five deserves purchasing consideration, while a nine for a racing game nowadays would require a supremely playable and remarkably comprehensive game (preferably with myriad gameplay innovations).

Outrageously, **Edge** staffers have been accused of not actually liking videogames, hence its strict scores. The **Edge** team's combined gaming experience currently spans 165 years, dating back to 1975. In the 25 years since, the very best and, occasionally, the very worst gaming has to offer has been loaded up, slotted in or spun around in a formidable list of hardware. Every member of the editorial team is a devoted gamer, and what little spare time is left outside of work too often involves electronic entertainment around a cathode-ray tube.

No one here enjoys dishing out poor marks. Substandard games don't take the medium forward, and the magazine will not tolerate underdeveloped, inadequately designed or exploitative titles to keep publishers or advertisers happy. **Edge** treats its audience as intelligent individuals capable of handling an honest appraisal of a game. If any aspect of any game affects its playability, chances are you'll read about it in an **Edge** testscreen, and the score will inevitably strive to reflect the game's true value.











Jet Set Radio

Format: **Dreamcast** Publisher: **Sega** Developer: **Smile Bit** Price: **¥5,800 (£36)** Release: **Out now (Japan)**









Grinding along precarious roofs and guttering is automatic once your skates touch the track. Multiple tricks and leaps can be made for additional points

Fears that *Jet Set Radio* is a game that places style over content should be eliminated immediately. The vivid cartoon graphics and much-talked-about cel shading combination could certainly have provided convenient excuses for Sega's development team to produce a poor man's *Tony Hawk's Pro Skater*, but *Jet Set Radio* updates the skate grind genre with a depth and vibrancy which can be breathtaking.

The premise is simple: rollerblade around areas of the local city tagging the territory to establish your gang's authority. The tag areas are indicated by large red arrows; green arrows provide locations for bonus points. Cleverly, individuals from opposing gangs can be seen spraying their logos around the environment as you play – crashing into them, stealing their paint canisters and daubing over their work is just one of the many subtle joys provided by the game. The aim is to spray over all rival tags and secure the area before time runs out.

If this was all *JSR* offered, then complaints about Sega shallowness would be justified. However, the design of the levels married with the strategies which must be employed to complete your area most effectively serve to enliven and deepen the gameplay experience. It quickly becomes apparent that your supply of spray cans is limited, and although they do eventually reappear, thought has to be put into collecting them at the most appropriate times. Tags, too, range from the very small (requiring one can of paint) to the very large (which require anything up to 12 cans). Run out of paint and your time is compromised by having to skate off to collect more.

Enemies ranging from the local police force to Molotov cocktail-carrying maniacs also threaten to hamper your progress. As the tags are completed, these enemies pay you more attention and increase in number. For larger surfaces, commands must be followed with the analogue controller to spray the paint efficiently. Spending dangerous time spraying the larger murals while helicopter homing missiles assail your position is a mistake you'll only make once. Completing the larger tags first, while there are fewer enemies, eventually becomes a necessity.

This is one of the **most assured games in recent years;** that the gameplay matches the stylistics shows an **almost arrogant confidence**



In large crowd scenes slowdown does, unfortunately, emerge. Such moments are thankfully infrequent and certainly do not spoil the overall *JSR* experience. Characters leap out of the way when you approach

Indeed, the deeper you go into the game the more involving it becomes. The narrative is provided by pirate radio DJ Professor K – once each section of the city has been secured he delivers a suitably quirky appraisal of the current situation. After unlocking all the areas and literally painting the whole town red, the local crime syndicate threatens to spoil your fun. Henchmen complete with sunglasses, moustaches, perms and laser-sighted weapons must be defeated to unlock the next city; the humour and intelligence with which the plot progresses is extraordinary. Add generating your own tags with an editing and design facility, and there is enough here to consume many hours of your leisure time.

Skating around the *Jet Set Radio* world is a hoot in itself – a wide range of grinds, flips and tricks can be performed with relative ease. Though the aerial gymnastics are more limited than those of the *Tony Hawk's* titles, they tend to be significantly more intuitive – combos, wall grinds and rail grinds can be performed with the push of one button and a movement on the analogue stick. Landing directly on a distant rail after leaping and















The player begins with three skaters, though others join your gang once you have completed their training mission. Cleverly, the lessons learned (such as wall jumping) will be required on the next level

somersaulting several times is an exhilirating experience. Camera lag hampers precise positioning at times, and manoeuvring in limited spaces can prove frustrating, but such glitches are too few to seriously deter the committed gamer.

Notably, the player's own posse of graffiti heroes grows as the game opens up and extra missions are unlocked; perform a training run and the instructor joins your team. Each has their own distinctive look, moves, attributes and even dance routine. At certain points races must be won against your own team members; dodging, grinding and making your way to a tag point on the other side of the city while doggedly keeping ahead of a colleague is just one of the more impressive sub-games. Indeed, look closely and *JSR* offers a range of game styles. **Edge**'s current favourite is rescuing a stolen dog by chasing down a rival gang and spraying their backs – a fiendish objective requiring an entirely new approach.

Sega has produced one of the most assured and visually arresting games in recent years; that the gameplay matches the groundbreaking stylistics shows an almost arrogant confidence. Those still unconvinced by Dreamcast's credentials should be ashamed.

Edge rating: Eight out of ten

Marking a new era of graphical representation

The transition from 2D to 3D during the previous console skirmish became a defining factor in game presentation and saw the Saturn fall by the wayside. The push towards 'realistic' representation has yet to cause anything like the stir *Super Mario 64* instigated. *Jet Set Radio* opts for a new approach and pulls it off with a great deal of panache. The decision to create the style of a 2D cartoon world which actually operates within a three dimensional physic is nothing short of audacious and stunning. The fact that it also plays supremely well is testament to Sega's creative foresight and experience. Expect imitations.

Virtua Tennis

Format: **Dreamcast** Publisher: **Sega** Developer: **In-house** Price: **$40 (£27)** Release: **Out now (US) September 8 (UK)**







The training options on the oneplayer World Circuit mode also reward you with prize money, but harder levels may well leave you screaming in abject despair

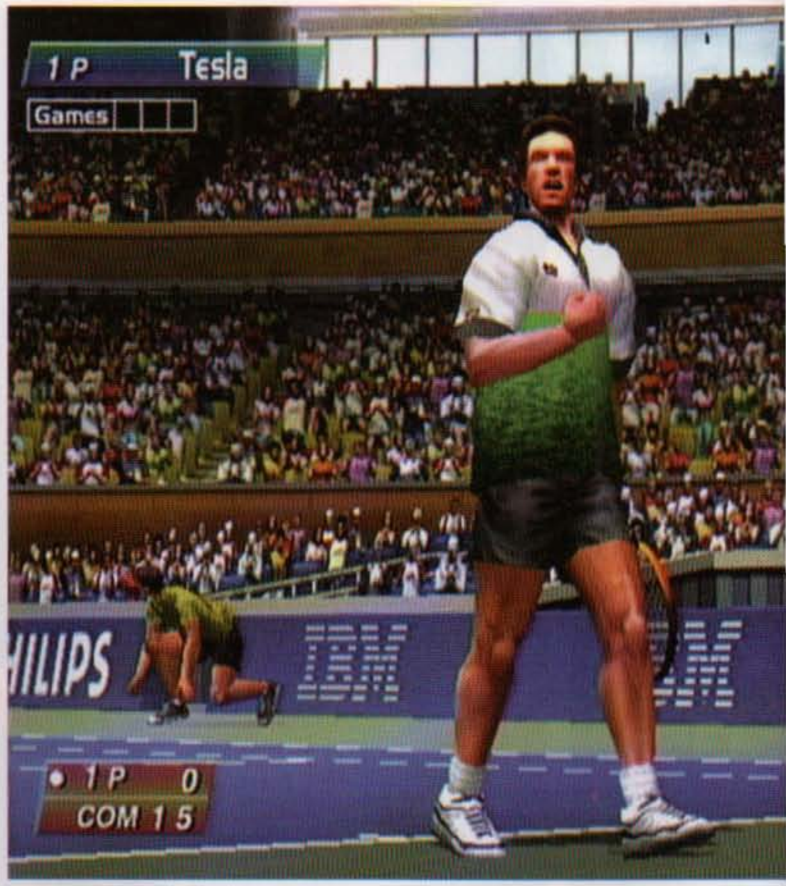
Other than a couple of notable efforts from Namco over the last decade and a particularly commendable attempt by Nintendo on Game Boy, there hasn't been a racket-and-ball affair that has grabbed gamers with the same titanium-coated hydraulic grip of the SNES's *Super Tennis* some nine years ago. Criminally, recent ventures have concentrated too hard on realism at the expense of gameplay. How ironic, then, that one of the most authentic looking digital tennis endeavours should also turn out to be the most playable yet.

Virtua Tennis, like selected Dreamcast titles before it, originally emerged as an arcade game. Its marriage of simple two-button control and sumptuous aesthetics proved too tempting for most, even luring non-gamers and the most casual of tennis followers into their nearest arcade. Unsurprisingly, then, the home version offers the same five-stage, two-game international tournament. Visually identical to its coin-op parent, including flawless presentation, impressive attention to detail, wonderfully effective replays and exquisite animation, DC *Virtua Tennis* also retains the exceptional playability that has led it to enjoy great popularity in the arcades.

There's more to *Virtua Tennis* than a straightforward arcade port, of course. Most significantly, the game introduces a doubles mode, so it's now possible for you and a friend to either partner up and take on the CPU opposition or stand on opposite sides of the net alongside your artificially intelligent team-mate. The way these react to the action is remarkable, swapping sides, adapting their game to yours if necessary, and generally behaving like a real-life tennis partner. The resulting rallies offer some supremely satisfing gameplay, drawing the player right into the action.

Within minutes you will have **succumbed to *Virtua Tennis*' utter charm,** revelling in its unalloyed addictive **and intuitive qualities**

Four players can take part, and you may as well make use of the game's exhibition mode at this stage (fourplayer action in the arcade option is possible, but the tournament structure – whereby the losing side is eliminated after the first round – renders it rather pointless). Given *Virtua Tennis*' looks, persuading acquaintances to pick up a joypad shouldn't pose much of a problem. However, should both pairs be drawn into the net, fourplayer matches can degenerate into a frenzied table tennis-style game, which can momentarily shatter the title's immersive quality, but for the majority of the time the matches progress at a convincing and involving pace, leaving little spare time to check out the game's remaining play mode.



The detail level in *Virtua Tennis* is remarkable, from players' expressions and muscle definition to their movement, surrounding linesmen sponsors' banners, camera positioning and stadia architecture

The World Circuit option is *Virtua Tennis*' main mode for those with few joypads. It's a substantial, well-structured oneplayer package, giving you the chance to take one of the eight players initially available (all modelled on a real-life pro equivalent) up the world rankings by travelling the globe, entering and winning competitions. At first only a few tournaments are available, though many more open up as you jet across international borders. For doubles matches, you must contract one of the partners available from the various shops in the game – the better the partner, the more cash you hand over, but you'd be surprised how dependable and consistent some of the budget-range entrants are. Money is acquired by winning competitions and clearing the training levels that crop up on the world map – these can involve anything from smashing giant balls off a court to playing a tennis version of ten-pin bowling, and like the competitions these tend to offer three difficulty levels. Once funds are high, step into a shop to purchase new courts and players (from a range of five and eight, respectively) which can then be used in the other play modes. Energy-recovery drinks, new strings and flashy tennis wear are also available.

Although the control system may appear initially limiting (a button for fore/backhand and smash and volley, another for lobs),









Replays make liberal use of dramatic angles and zoom effects. The less playable alternative view (top)

combining it with directional controls determines the nature of your shots – suddenly, your range of returns opens up in an impressively comprehensive manner. The game is playable using the D-pad, but the analogue stick offers superior control in terms of shot placement and length, even if things may feel a little odd at first for anyone graduating from the digital tennis games of yesteryear. However, even habitués of these titles should find themselves seduced by *Virtua Tennis*, revelling instead in the unalloyed addictive and intuitive qualities of the genre's most accomplished example to date. Were it not for the irritation caused by the almost unbeatable players in later stages and the inability to play more than a single set per match, *Virtua Tennis* would have been a near-perfect sports game.

Edge rating: Eight out of ten







During play, your VM unit displays a crude interpretation of the onscreen action. While it's possible to play the game by staring at the tiny LCD screen, why you'd want to is unclear

Attention to detail

The lengths Sega has gone to recreate the feel of a pro tennis match are exemplary. Ball boys, linesmen and the crowd are all animated. Clouds passing overhead obscure the action. On clay the spots where balls land are clearly visible, while umpire adopt the language of the country where the game is being played, and players' facial expressions alter depending on the shot being played. Masterful touches all.



Deus Ex

Format: **PC (reviewed), Mac** Publisher: **Eidos** Developer: **Ion Storm** Price: **£40** Release: **August**

After the unholy mess of Romero's *Daikatana*, *Deus Ex* – a project headed by Warren Spector – perhaps represented an immediate opportunity for developer Ion Storm to make up some lost ground. Early reports touted it as a dark, 'The Matrix'-inspired adventure, or a near-future RPG, or a *Half-Life*-beating firstperson shooter. A look at the finished product shows the reason for the confusion: *Deus Ex* is all it promised to be and more, spectacularly defying all attempts at pigeonholing.

The player takes on the role of JC Denton, an agent for a post-UN peacekeeping force called UNATCO, dedicated to fighting a war against terrorism in a future world ravaged by poverty and disease. The disease in question is the 'Gray Death', and the only known remedy is the drug Ambrosia, which is being hoarded for those in positions of power and influence. The terrorists have targeted Ambrosia, and are demanding its distribution directly to the people. Ethically, they have a point.

Denton's body has been **engineered to serve UNATCO;** Denton's mind – your mind – is having doubts about **whether he should do so**







Making the correct choice of weapon in each situation is crucial. A sniper rifle might be perfect for some situations, but not for a flamethrower-wielding guard at close range or in a boardroom shootout

Beginning just outside New York, the game is extravagant in its locations, taking you to Hong Kong, Paris, Area 51 and beyond. The *Unreal* engine, improved with enhanced lighting and a more realistic physics model, renders each with an occasional beauty, albeit mainly due to the sophisticated level design. These are 3D mazes carved from cities, each holding secrets, a mass of non player characters, and multiple problems to overcome.

Every location holds a series of game-critical primary objectives, but talking to NPCs will often trigger secondary tasks. Though these tasks are often unrelated to the mission in hand, solving them will sometimes provide information that is either helpful or serves to advance the storyline. It's this freedom to act upon or ignore information that holds the key to the game's success.

Games often claim multiple completion methods, but rarely achieve their goal with this much variation and style. Stealth, sniping, destruction, intelligence, careful planning, murderous rampages – all have their place within the multi-layered mission structure. Is it a *Metal Gear Solid* clone, a *Doom*-style killfest? As the game morphs seamlessly between genres, adapting your tactics can be an advantage, but is rarely an absolute necessity.

Completion of goals, both primary and secondary, is rewarded with skill points with which Denton's core abilities can be improved. While skill advancement in many RPGs merely affects your destructive capabilities – weapon range, close combat, or magic – choosing how to spend your accrued skill points is crucial to the path you'll take through each level. Advance in electronics and you'll be able to disable security networks with increasing ease. Choose heavy weaponry and develop your ability to blast holes in things.

Combat methods, in particular, are massively varied. Faced with a roomful of guards, you can use heavy explosives to take as many down as possible in one blast, or just go in all guns blazing in the manner of a traditional FPS. Alternatively, you can go for head shots with a sniper rifle, or sneak in and silently dispose of individual guards with a knife or stun gun, hiding bodies to avoid detection. Another tactic is to throw in a gas grenade and use the confusion to your advantage. Your approach depends upon the situation you find yourself in, the weapon skill you've decided to specialise in, or your own particular whim at the time.

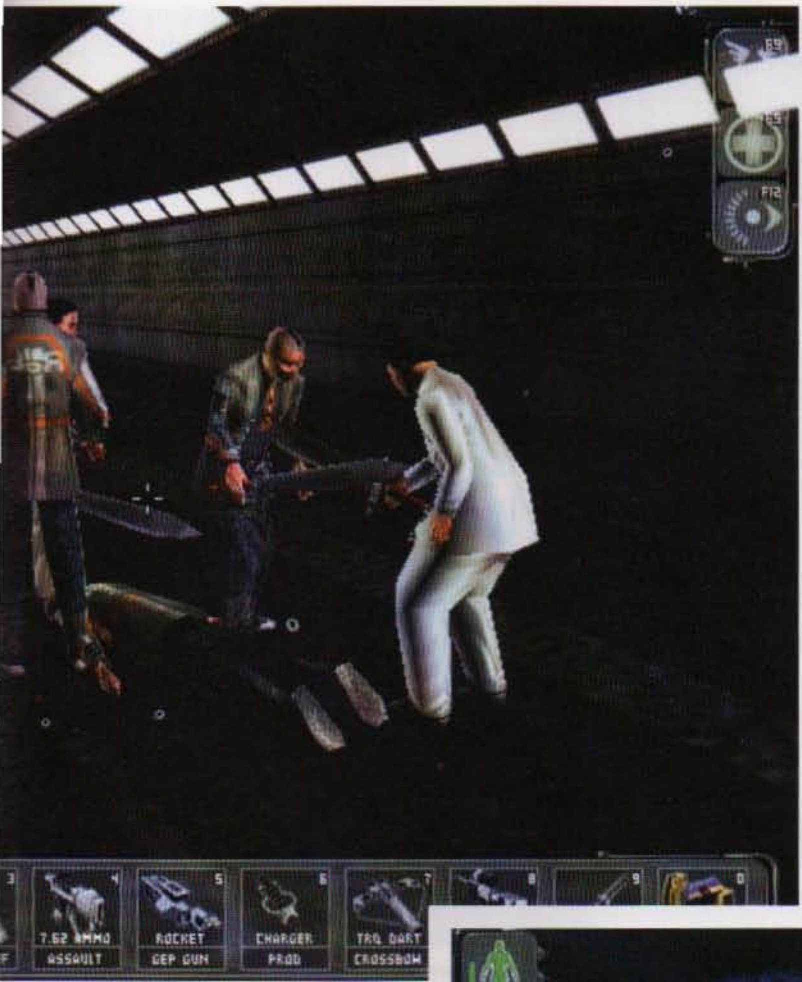
In addition to Denton's skills come augmentations – permanent special abilities that can be added and upgraded with canisters scattered sparsely around the *Deus Ex* world. Each offers a choice: speed or stealth, better energy conservation or improved performance. Once these are installed, they cannot be removed or changed, leaving you to regret, for example, not choosing toxic protection when you can see an easy route through a waste pipe. Weapon upgrades, too, are available, enabling you to personalise parts of your armoury with increased range, accuracy or laser sights. Ultimately, you build Denton up, and you're responsible for his strengths and weaknesses, which is hugely satisfying.

Above all, *Deus Ex* never tells you what to do. Goals are set, but alter according to your decisions. In turn, how you handle the stark moral wildcards thrown up by the conflict affects people's reactions to you, as well as the future missions you receive. Denton's body has been engineered and enhanced with nanotechnology in order to serve UNATCO; Denton's mind – your mind – is having doubts about whether he ought to be doing so. The choice, and the associated pressure, is all yours.



The only discernible weaknesses in *Deus Ex* concerns the gradual degeneration of the plot into third-rate sci-fi nonsense and some appalling voice acting, which detract from the immersive experience, as do the increasingly large saving and loading times between areas. These are irritations a game this well designed deserves to be without, but they aren't enough to spoil the enjoyment. Behind the plot lies a game structure and depth that stands out from everything that has gone before. Put simply, it's the anti-*Daikatana* – a game that not only lives up to its hype, but often exceeds it.

Edge rating: Nine out of ten









Shortly after arriving in Hong Kong, Denton encounters two gangs of warring triads. Here, they settle their differences in a disused subway station

Moral dilemmas

Not long into *Deus Ex*, an attack on your brother's flat will leave you with a choice: flee through the bedroom window, as directed, or stay and fight. The decision, though non-critical, affects the path of the game, and must be made in an instant. Torn apart by morality versus cowardice, **Edge** took the Blair-esque third way and hid in a cupboard. Cowering, listening to the sounds of the conflict in a dark space until it's ripped apart by stray gunfire is terrifying, slightly embarrassing, and a perfect illustration of the freedom within the game.







Explosions and smoke effects are dramatic, if not especially realistic. Structures are varied within the same geographical area, taking Denton from engineering plants to trying his luck in a local nightspot

Legend of Dragoon

Format: **PlayStation** Publisher: **SCE** Developer: **In-house** Price: **$40 (£27)** Release: **Out now (US) December (UK)**

Three years in the making, with a development team of 100-plus staff, Sony's foray into Japan's favourite genre was always going to be big news. The final result spans four CDs, contains more than half an hour of CG movies, but makes so many mistakes that only a hefty marketing campaign will protect its sales from the critical backlash.

It takes just seconds to realise that *Final Fantasy*'s PlayStation episodes were the primary sources of inspiration. *Legend of Dragoon* retains the prerendered backdrops and 3D battlefields, steals some dragon transformations from Capcom's *Breath of Fire* series, and bases the combat system around *Gunblade*-style timed key presses to extend attacks into combos.

Designing for a massmarket **demands accessibility,** but Sony's attempt to play safe has resulted in **a predictable, linear plot**

Designing for a massmarket demands accessibility, but Sony's attempt to play safe has been translated into a predictable, linear plot untroubled by puzzles or side-quests. Gather your Water Margin band of Dragoons – human warriors with elemental dragon powers – and then take on an evil empire with your transforming 'sentai' task force. The characters are the blandest stereotypes imaginable, from the spiky-haired Dart to the accident-prone love interest of Shana, a brazen Rinoa-clone, and it's giving little away to reveal that you can spot a potential recruit in advance when the colour of their outfit matches the elemental force you're missing. The storyline isn't aided by its poor and often boggling localisation of dialogue. It beggars belief that more effort wasn't invested here, when global release was a definite.

Fans are notoriously resilient to these shortcomings, of course, but an RPG still needs a half-decent combat system to maintain interest for more than 40 hours of play. Ultimately, this is where *LoD* falls down. Again, you can see that the developer has focused on simplicity: there are no skills or classes, magic is limited to special attacks and the role of equipment has been marginalised. But paring down the usual tactical options has merely created a shallow battle engine that plays more like a turn-based beat 'em up in which the player's options are pretty much limited to attacking or defending with a weapon in every round. This is where Sony's Addition system comes in, of course, and no doubt it was hoping that its button-tapping gameplay would hold wider appeal than the usual wargame-derived skirmishes. But the Additions soon become repetitive, lacking the sophistication of *Vagrant Story*, so the initial thrill palls after a few hours. The timings are so demanding that some players may even feel left behind.

Oddly, defending is your primary means of healing, and recovers just ten per cent of max health per round while effectively doubling the length of most battles. Couple this with some inescapable enemy animations that rely on heavy disc access and you have a grindingly tedious combat system at the core of the game.

The list of design issues is far too extensive to more than touch on here: but take, for example, an inventory that allows just 32 items. Whatever the reasoning behind such an obviously deliberate restriction, the reality is that you spend most of the game managing or discarding your treasures as soon as you acquire them. With item use being your only means of curing status ailments and recovering magic for some party line-ups, this seems a ludicrous way to increase the difficulty level.

Graphical excellence will be a selling point and *LoD* indulges the player in running water and drifting smoke effects. Nevertheless, either Sony knows less about its own console than Square, or the lengthy development has taken its toll. There's little here that hasn't already appeared in other games over the past three years, and the







Monster encounters aren't so much random as perfectly regular in their occurence, with an indicator arrow warming from blue to red as the time for combat approaches, taking the sting out of things somewhat







In winged form, your character can (with little choice) perform a Dragoon attack. Yet more button-pressing is required to make it succeed









Unless you use Additions in every attack, the damage inflicted is negligible. It isn't possible to ignore them, and they soon become tiresome



Linear pathways on the world map carry the player from one event to another, limiting any adventure

loud CG sequences can be jarring in their heavy-handed application.

This soulless and cynical attempt to muscle in on the genre is precisely what you'd expect from a game put together under the dictates of marketing and product planning. Almost every element has been borrowed from other titles, and then assembled so thoughtlessly that the whole project fails to gel. In striving so hard for massmarket accessibility, the developer often neglects to instil any depth. There's little doubt that Sony's promotional power will secure the game's chart success in all major territories, but it's not hard to picture legions of bored and disappointed players giving up after the first disc.

Edge rating: Five out of ten



A balancing error has left *Legend of Dragoon*'s bosses with more experience points than hundreds of enemies, completely taking the reward out of other encounters as you move through the game

Rhythmic RPGs

Button-tapping seems to be the vogue in current RPGs, as witnessed in *Vagrant Story* and *Valkyrie Profile*, but *Legend of Dragoon*'s Addition system is simpler that its rivals. While the combat is strictly turn-based, every attack animation has to be extended into a multi-hit combo with perfectly timed presses of the X button. Successful execution will start to fill a Special Power bar, eventually enabling the character to transform into a winged Dragoon and perform either an elemental magical blast or a flying attack.

The timing is actually quite demanding at first, and you must also watch out for counter-attack warnings that require you to hit a reversal button instead. Much simpler to use are the attack items – collectable one-shot missiles whose damage can be raised by 100-300 per cent simply by mashing the X-button as quickly as possible. Prepare to dust off your old 'sleeve-over-the-finger' rubbing technique.

TOCA World Touring Cars

Format: **PlayStation** Publisher: **Codemasters** Developer: **In-house** Price: **£35** Release: **August 25**









From top: the multiplayer option, though technically limited, is welcome; serious damage can be taken care of in the pits; some of the bonus cars can be a handful; the usual settings options are included

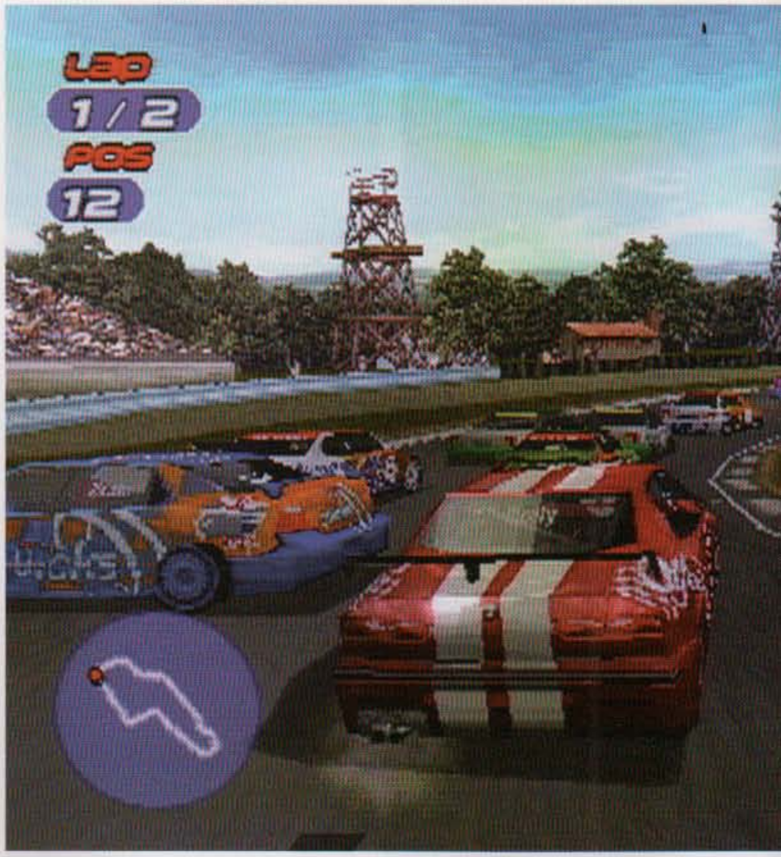
In the savagely competitive world of console racing, two developers regularly lap the rest of the field: Asia's Polyphony Digital Inc may have have the edge at the moment, but in Europe, hoping to force an uncharacteristic driving error from its sole competitor, Codemasters keeps pushing. On either Tarmac or dirt, if you're looking for playability, technical ability, and an astoundingly consistent understanding of gameplay, nothing this side of Russia comes close to the Warwickshire codeshop.

And when it comes to sequels, few work harder at improving on past efforts. From 1997's *TOCA Touring Car Championship*, a straight – though immensely playable – representation of that year's season, to *TOCA 2* a year and a bit later, which took the unprecedented step of including the support races from the Touring Car series as well as implementing an unrivalled cable link-up mode, Codemasters left little doubt as to how serious it was about its *TOCA* licence.

Which leads to *TOCA World Touring Cars*. As the name suggests, the action this time extends beyond Great Britain's roads to include Touring Car series from five continents (namely Europe, North and South America, Australia and Asia), raced on 23 licensed tracks. Assuming you're a videogame racing fan with reasonable experience, you'll recognise some of these from F1, NASCAR and previous TOCA games, but others such as Australia's Surfers Paradise Street Circuit and Mt Panorama tracks, or France's Dijon-Prenois venue, will be refreshingly new to most. Ultimately, the tracks are as varied as the car collection which, while not massive at some 40-odd models, has been carefully and wisely selected to provide the player

The main game eschews **the depressingly linear structure** of the majority of racing titles in favour of a **more intelligent model**

with some excitingly different models, some of which present challenging handling characteristics. True, most of the standard Touring Car models offer a fairly forgiving approach, and though Codemasters will no doubt disagree, *GT2*'s dynamics still feel as though they are better implemented – though it's a very close run thing. Nevertheless, moving from the predictable Audi A4 Quattro, which can be thrown into



At times a little slowdown creeps in when things get busy, though it's not around long enough to spoil the action. The heavy demands on the CPU have resulted in the need for very slight letterboxing

corners with reasonable abandon, to the tail-happy Lotus R340 or the frenzied power delivery of TVR's Speed 12 can be a disconcerting experience.

Before that's likely to happen, however, plenty of rubber will have been left on the track. The main game – the oneplayer Championship Career mode – eschews the depressingly common linear structure of the majority of racing titles in favour of a intelligently thought-out model. Before you get to the racing part, driving offers from various international teams are made available. Pick one and complete a simple test drive (which is sufficient to qualify you to race for other teams, unless your performance deteriorates) and enter one of seven national championships, each of which is composed of six race events. During the season you'll obviously want to amass the maximum number of points (which unlock cars in other modes), but you also have to keep in mind the team objective set out at the time of the offer, which can consist of anything from a points target to finishing ahead of a particular rival. Your performance throughout the championship determines the type of offers you find when returning to your career screen. Eventually, it's on to the international and finally the WTC series.

Graphically, it's difficult to think of the PlayStation managing more than what Codemasters is asking of it here. *GT2*'s cars and tracks may look prettier, but then it doesn't have to worry about anywhere near the same number of competitors on track (12 to 16, depending on the championship level). More importantly, whereas *GT2* focuses on the car, *TOCA WTC* very much emphasises the driver and the whole aspect of belonging to a team, and it does so with more conviction than anything else to date.

Another thing it does better than most is create the illusion of racing against other













While the sound is superb, few things are as much fun as night races without the use of your headlights

drivers, rather than the usual drone-like entities. Stay close to someone's tail, applying pressure, and they're likely to out-brake themselves into the nearest gravel trap, for instance. Or you could find yourself racing ahead of the pack in fear of being pushed off the black stuff by Schumacher types (*TOCA WTC* offers the most aggressive field of digital racers **Edge** has had the pleasure to do battle with). With the exception of some infrequent instances that leave you feeling unfairly beaten, the result is both intensely enjoyable and strikingly engrossing – at times it even manages to be more exciting than its closest competitors.

While the *TOCA* licence may restrict the overall diversity of the title – robbing it of some potential – quality-wise, it is on a par with premium racing titles *GT2* and *Colin McRae Rally 2.0*.

Edge rating: Eight out of ten



The way you can customise your own championships for yourself and any friends that may be playing alongside you is a fine touch. Whether they'll prove as aggressive as the CPU drivers is debatable

Expect *WTC*'s opposition to give you one of the hardest times you'll have ever encountered in a racing game. It's wonderfully immersive

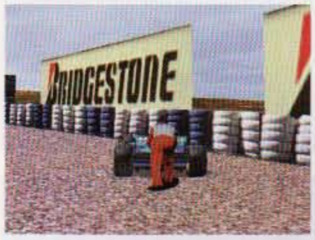
Applying damage

One feature that has undoubtedly helped elevate the *TOCA* games above the competition has been the implementation of damage. The gameplay implications of this seemingly obvious addition can not be underestimated – *WTC* would lose tremendous appeal without it. By far the most advanced of the series so far, this real physics-based model offers some superbly realistic and comprehensive damage effects. This contributes massively to the game's atmosphere, conveying the Touring Car series' sense of close-contact racing effortlessly, substantially enriching the gaming experience. Other than PC sims, there currently isn't a more convincing example around.

Grand Prix 3

Format: **PC** Publisher: **Microprose** Developer: **Geoff Crammond and co** Price: **£30** Release: **Out now**





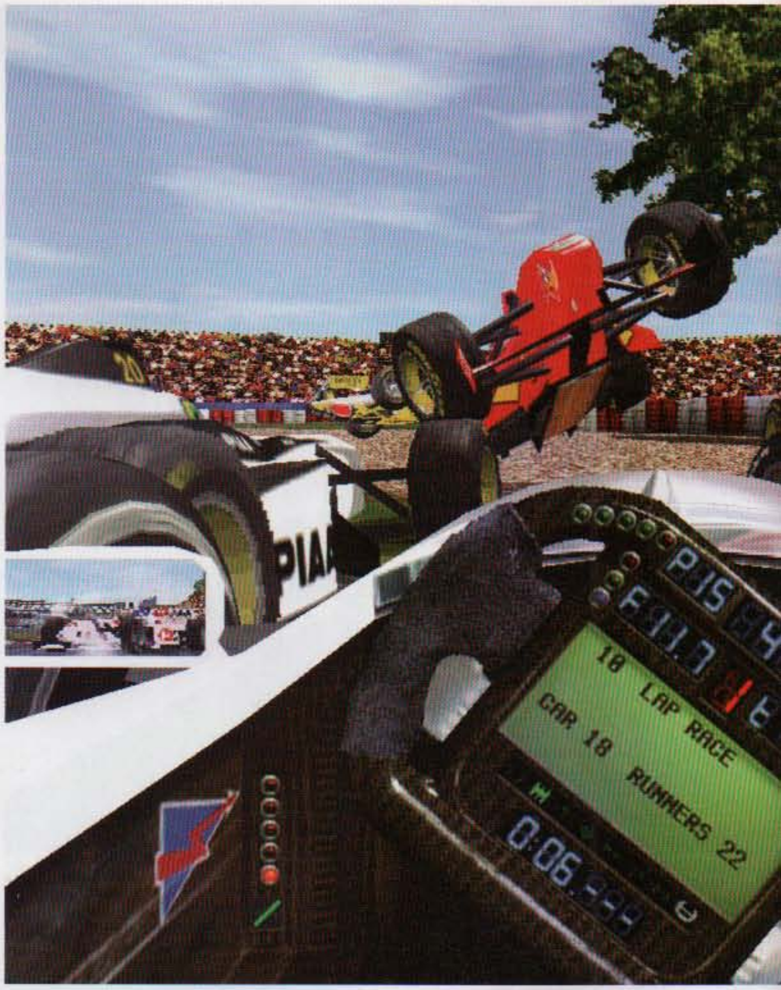


From top: A complete crew awaits you in the pits (one even wipes your visor); Marshals clear away retirements; and one of many post-race screens

Grand Prix 3 is one of those rare games that manages the magical feat of making Formula One more exciting than it appears on television. The continuing drive from governing body FOA to reduce speeds and improve safety has gradually turned motorsport's premier activity into one of the dullest spectator sports around. Nowadays, F1 races have an annoying and disappointing tendency to turn into a monotonous procession of cigarette and telecommunications adverts whizzing around circuits across intercontinental locations, occasionally interrupted by the odd retirement or, if you're really lucky, an overtaking manoeuvre. Yet, by accurately capturing the intricacies of the sport, this simulation finally proves to armchair enthusiasts that participating is far more exciting than spectating.

That *Grand Prix 3* is excellent won't come as shock to those familiar with Geoff Crammond's previous work. Based on the 1998 season, the game does have an undeniably dated feel to it – but what Crammond's effort may lack in actuality it more than makes up for in attention to detail. With the exception of Jacques Villeneuve (who at the time had a penchant for licensing himself independently from the FIA), all 22 drivers and 11 teams feature alongside 16 circuits. Needless to say, every livery appears correctly placed on the fibreglass and advertising banners, and grandstands

What this simulation **finally proves to armchair enthusiasts** is that participating is far more **exciting than spectating**



As you'd expect, detail level is first rate. Failures include suspension, engine, transmission, throttle/brake and electrical problems, as well as punctures, loose wheels, oil/water leaks, tyre and undertray wear

and gravel traps line either side of the painstakingly recreated tracks.

The usual race options are offered (Quick, Practice, Multiplayer, Single and Championship), along with varying degrees of difficulty. The latter affect the number of driving aids available to the you, so that while the rookie option gives the player access to indestructibility, racing line display and throttle/brake/gear support, the ace setting offers only automatic gears and rear wheelspin control. One interesting and well-implemented addition is steering assistance, which compensates for control deficiencies when using keys or a switched joystick, as opposed to a force-feedback wheel.

Regardless of the difficulty setting, the player gets to adjust all of the car settings. This isn't a compulsory procedure, but toying with the damper rebound values, or checking out the weather forecast and carefully planning your pit stop strategy can be hugely satisfying.

Despite being given access to just about every fathomable option and more telemetry than the average brain can handle, the game's ability to immerse you within its virtual world only really hits home once you're sat on the grid, with 21 drivers around – or if you're unusually talented, behind – you, growing ever more tense as another red light switches on. Once they go off, surviving past the first corner with all wheels and bodywork intact (presuming you have all the failures enabled) is a genuine challenge, though navigating your way to the end of the race, having successfully avoided being run off the track by a competitor's overambitious overtaking and managing to move up a few places yourself is no picnic, either.

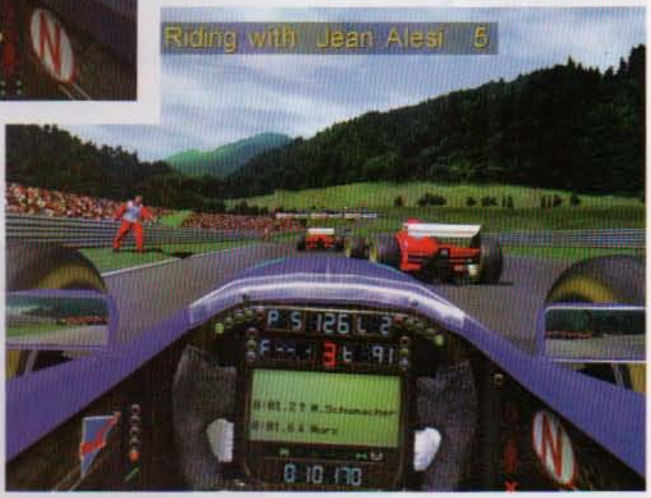
The cars handle beautifully (unless you've really tinkered with the set up), offering levels of grip and the sort of speed through corners that normal cars come nowhere near. With all of the driving aids off, keeping it on the limit requires utter dedication. However, *Grand Prix 3* is perhaps less hardcore an experience than *Grand Prix Legends*, which despite the absence of downforce and its slower cornering speeds, can occasionally offer marginally superior gaming moments.



The addition of arms for the drivers may well have encouraged still more identification by the player









Naturally, marshals and their flags come out as soon as an incident occurs. Although not shown here, *GP3*'s software version is excellent



Few things in the videogaming world rank as demanding as controlling 700-odd bhp on a wet surface while avoiding 21 determined competitors. The weather is a particularly well-implemented feature

At a time when every developer seems more concerned with bringing Grand Prix racing to the masses by trivialising most aspects of the sport, it's encouraging to come across a team still prepared to take the subject matter suitably seriously. While you would expect such an approach to alienate a portion of the more general gaming audience, the title's quick race options, combined with some supremely implemented driving aids, ensure it's as accessible as F1 simulations get. But in addition to this, in terms of authenticity, content, and overall execution, *Grand Prix 3* excels, and qualifies as a wholly justified sequel.

Edge rating: Eight out of ten

Weather: changeable

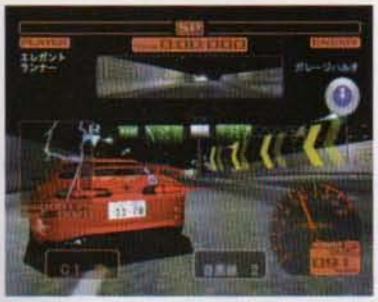
Over the years, one of the most consistently criticised omissions from *Grand Prix 2* is a changeable weather system. Although thought to have been planned for inclusion at the time, Crammond must have felt uncomfortable about its implementation and the feature was removed near the end of the development cycle. Third time around, no such problems have occurred. The weather in *Grand Prix 3* is entirely dynamic; in addition to getting rain in the middle of a race, occasionally it's possible for one area of the track to be wet, while others dry out. Furthermore, after a shower, wet and dry patches develop as cars pass over certain areas, adding to the game's authenticity.

Shutokou Battle 2

Format: **Dreamcast** Publisher: **Genki** Developer: **In-house** Price: **¥5,800 (£35)** Release: **Out now (Japan) TBC (UK)**









The visuals have been massively improved and, as in the original, everything moves mostly at 60fps. The PAL version may include some additional elements, such as a twoplayer option







Naturally, most of the vehicles are of Japanese origin. Beat a particular model and it becomes available to buy. Race replays prove compelling

Get yourself upgraded

As with seemingly every other racing game nowadays, *Shutokou Battle 2* taps into the Japanese obsession with car tuning by offering a reasonably comprehensive selection of upgrades, though most focus on the aesthetic rather than the performance side. As ever, the ability to personalise your car with a customised paint job and sticker set – as well as some tastefully selected spoilers, side skirt, light fixings and alloys – and witness the alteration in realtime is satisfying, while tweaking with the control sensitivity costs nothing and can radically improve handling.

With its interesting if somewhat limited premise, the shamefully underdeveloped original *Shutokou Battle* failed to set the racing world alight. While not tweaking the core concept too heavily, the sequel sets out to improve on its predecessor's shortcomings in the hope of an enhanced performance second time around the track.

The 'battleground' remains Tokyo's urban highway system, but this time length is massively improved – overall, some 150km of Tarmac are now available which, as in the previous game, can be driven in either direction. As with the original, the immediate criticism – that the very nature of the highway structure can make it a very dull road to travel – still stands, though this time the occasional forks in the freeway tend to be more dramatic, requiring more brake button input. Thankfully, the handling has improved substantially, meaning vehicles can manage curves without having to resort to bouncing around the Armco. However, *Shutokou Battle 2* by no means presents the player with a perfect handling model – the cars still have a tendency to feel a little floaty – but the changes make things far more enjoyable.

The aim of the main Quest mode remains identical. Motor through the capital's night traffic in search of a rival to challenge. When you do, and should you fancy your chances, flick your main beam and the race is on. As in the first game, staying ahead of your opponent by weaving craftily through the civilian traffic depletes your persuer's energy. Maintain first place long enough and victory and cash rewards ensue.

You can spend this on purchasing a new duelling machine or on improving your existing model with either mechanical upgrades or new paintwork/bodywork schemes and decals. The enhancements feedback via nigh-instantaneous visual cues, which can prove satisfying, if a little anal.

An overall improvement resulting in an enjoyable title, then, but the repetitiveness of the proceedings combined with the limitations of the concept proves undeniably emasculatory. You could argue that within its sub-genre *Shutokou Battle 2* does everything it needs to with reasonable competence, but in today's fiercely competitive racing videogame market, it's still trailing a significant distance behind the frontrunners in the genre.

Edge rating: Five out of ten

Street Fighter III 3rd Strike

Format: **Dreamcast** Publisher: **Capcom** Developer: **In-house** Price: **£35** Release: **Out now (Japan) TBC (UK)**

The *Street Fighter* is unlikely to ever again enjoy the adulation that met its 1990 SNES debut. While the contemporary gamer may well cite the likes of *Tekken* or *Soul Calibur* as the epitome of the genre, those longer in the tooth will relish the idea of yet another version of the indefatigable brawler.

Staying true to the tradition of fresh protagonists for each new title, 19 characters are selectable from the off, the most familiar of which are Ryu, Ken and Chun Li. Much of the remaining cast returns from *Street Fighter III: W Impact*, with a handful of newcomers adding minimal spice to the gameplay. Equally welcome is the quality of animation, bearing all the hallmarks of its older cousin. That said, *Street Fighter III 3rd Strike* suffers from a lack of inspiration in its backdrop design. Harbours and building sites simply don't match the visual flair of previous game stages, such as *W Impact*'s clichéd London setting or *Zero 3*'s stormy wooded clearing.

Partial respite from this letdown is the inclusion of all the de rigeur game modes: Arcade, Versus and Training. Arcade now offers the player the opportunity to set the order in which opponents are tackled. This ensures no two journeys through a oneplayer game will present quite the same challenge.

Despite these additions, the only really new ingredient is a refined blocking arrangement, referred to as System Direction. Various forms of block and guard block can be switched on or off, and timings altered to suit fighting styles. However, putting these selections into practice delivers subtleties too slight for all but the most seasoned of players to distinguish, giving rise to fears of technical minutiae taking precedence over sheer thrills.

Lamentably, even the most devout aficionado would agree that little has changed between chapters, save minor tweaks to the fighting system. While there are new characters to give the illusion of progress, many will find themselves returning to the undeniable balance of Ryu, Ken or Gouki when engaging in multiplayer bouts. In light of such token modifications, it will be down to the series' familiar formula to secure its success, all other elements ultimately rendered cosmetic distraction. At heart, *Street Fighter III 3rd Strike* is *Street Fighter* by any other name, and despite its self-defined constraints, this alone will be the measure of its worth.

Edge rating: Six out of ten









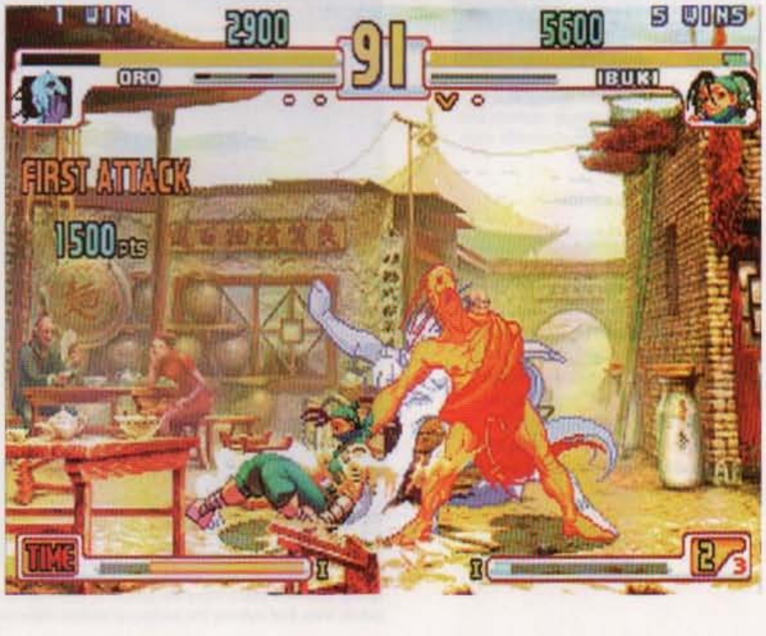
In order to warrant their use, new characters must come with something extra. the unlikely inclusion of Twelve (above) seems to be down to an overspill from the Capcom-developed *Marvel vs Capcom 2*



Protagonists such as the hulking, sloth-like Hugo (left) are of questionable worth. Good for a few bouts only, you have to wonder where Edmond Honda went

Get yourself upgraded

Billed as System Direction, Capcom has bolstered *Street Fighter III 3rd Strike*'s gameplay by allowing the manipulation of nearly every aspect of the fighting mechanics. Essentially a series of on/off selections, this feature sees such facets as blocking distance, guard damage, throws and dashes rendered active or passive, dependent on their status. Ten pages of options are present, although the final eight are unlocked by completing the game.



Diablo II

Format: **PC (reviewed), Mac** Publisher: **Havas** Developer: **Blizzard Entertainment** Price: **£30** Release: **Out now**



The majority of NPC interaction and storyline progress takes place in your base camp. Here, Paladin Edge is thanked for a job well done









The FMV sequences introducing and linking the acts are strikingly realistic and rendered in an impressive cinematic style







Killing enemies which have the power to resurrect fallen comrades is crucial. The transparent automap (white lines that overlay the action) is crucial when exploring *Diablo II*'s randomly generated territories

Taking a gamble

As well as magic, weapons and armour, sets' of equipment are hidden around *Diablo II*'s expansive realm. Though each part of the set is individually strong, when all of a set is used at once it takes on an even greater power. They're well hidden, though, so most will only be found by diligent exploring or 'gambling' – buying random, unidentified pieces of equipment from NPC street traders.

Picking up where *Diablo* left off, *Diablo II* requires you to cast a new hero in your image. Choose from amazon, warrior, necromancer, paladin, or sorceress, and allocate skills, weaponry and armour. When you've finished sculpting your champion, it's time to place them into an isometric world of endless flat landscapes, randomly generated dungeons, and much evil ready to be purged.

Even discounting the replay value (as well as the random generation and different classes of hero, there are two more difficulty levels which become available on completion), *Diablo II* is huge. Four graphically distinct 'acts' see you journeying east in search of 'The Wanderer'. Each act is composed of a series of simple quests. Unfortunately, the key word there is series: playing *Diablo II* is an utterly linear experience, with the end of one quest directing you to your base camp, and leading rapidly to the start of another.

This would be more palatable if the quests, which are worked into four overarching 'acts', weren't so similar. Almost all culminate in your slaying of a monster slightly bigger and trickier than the previous one, either for the sake of various items or just for the pointless righteousness of it all. There's no puzzle solving at all, not even of the most basic key-and-locked-door type. All character interaction and storyline advancement takes place with the half-dozen characters inside your current act's main location. Outside of this, it's a case of kill everything that moves.

As for combat, your one-man (or several, if you want to play multiplayer through battle.net) army will be attacked by fantastic numbers of monsters, and it's all quite frantically enjoyable, if more reminiscent of *Gauntlet* than an RPG. Click and you'll swipe, stab, or shoot at one of them, and they'll either die or you'll have to repeat. Bigger monsters require more clicking. Really big ones require the sort of constant hacking dedication worthy of a lumberjack. Victory doesn't so much require skill as persistence.

Roleplayers whose primary concern in an RPG is raising their character's level will find enjoyment here; in particular, the range of armour and weaponry is impressively varied. However, if you yearn for NPC interaction and a varied game structure, you'll be disappointed. *Diablo II* is simplistic, occasionally absorbing, and desperately shallow: fun in parts, but with far more promise than achievement.

Edge rating: Six out of ten

Infestation

Format: **PC** Publisher: **UbiSoft** Developer: **Frontier Developments** Price: **£30** Release: **Out now**

David Braben's worlds are always different – harsh, unnatural colours daubed on rolling landscapes mix with future Earth technology and unsettling alien shrieking, all glazed with a light cartoon touch. *Infestation* fits the pattern, and like *V2000* and *Zarch* before it, it's typically arcade-light on plot: all that really matters is the presence of the aliens, and the existence of a vehicle capable of destroying them. Known as an ACAM, this can be upgraded and fitted with improved weaponry as the game progresses.

Initially, though, the ACAM is a basic buggy, through which you are introduced to the game landscape and inertial feel in the context of a mode of transport whose control is instinctive. This is an astute move by developer Frontier, because the player has time to become comfortable with the other keys that control the firing, speed thrusts, beaming of objects to and from your ship, and the selection of primary and secondary weapons. Progress through the worlds means the introduction of more modes of movement for your ACAM, and with each comes a new period of control adjustment. Although lives will still be lost as the disoriented player desperately hits keys – indiscriminate use of thrust will almost certainly lead to death at the hands of either alien fighters or immersion in pools of water – this well-balanced learning curve means the process never gets frustrating.

Missions across the 22 worlds range from hostage rescues to the destabilisation of entire planets. Speed is important, strategy more so; it's wise to spend a minute or two paying attention to the detailed mission objectives screen and forming a plan. But it's the multiplayer modes, including football, racing, and capture the flag, that drive home the point that the stress of *Infestation* is firmly on enjoyment rather than realism.

In an era when so many games place their emphasis on slow progress across acres of flat landscapes, throwing vehicles across the acutely curved hills and valleys of *Infestation* is a joy. The only question-mark hanging over the title is the depth of its design. While it often represents old-skool videogaming at its best – dynamic, original, and fun – placed within the wider context of experiences of the complexity and conceptual sophistication of *Deus Ex*, *Infestation* can look a little lightweight.

Edge rating: Seven out of ten







Some vehicles have telescopic sights enabling you to zoom in and identify prospective targets. The on-screen radar also locates opponents, and will be familiar to players of Zarch/Virus



Resource management

Infestation exhibits elements of simple resource management. By picking up scientists from your base and dropping them off to examine alien technology, you can develop the knowledge critical for new upgrades to your craft. Once they've found something, a lightbulb will appear over their heads – but getting the improvements fitted to your ship involves more than just picking them up again. Each upgrade requires different amounts of the red, blue, and green crystals scattered through the game. Some crystals are only present in some systems, but upgrading your scanner will enable it to exhibit resource-rich areas.



Combat comes sporadically, and often unexpectedly, but planning attacks from a distance will improve your chances. The targeting system – a tunnel of three triangles – is competent enough to avoid irritation



Spider-Man

Format: **PlayStation** Publisher: **Activision** Developer: **Neversoft** Price: **£35** Release: **September**









The boss levels follow the lead of the *Zelda* series. There's one particular technique you can use to emerge victorious – work it out and you'll virtually walk through the game

Collecting comics

Key to Neversoft game design is the replayability factor, vital in this case considering *Spider-Man*'s limited length. Scattered throughout the levels are 32 comicbook covers from classic past issues of 'Spider-Man'. Finish the game once and you're granted a change of costume, offering unlimited webbing, using which you can swing through the streets of New York tracking down the elusive covers. Cleverly, this device serves two functions: on the one hand it extends the game beyond the scope of the original adventure, on the other it rewards ardent Marvel fans with a little self-congratulatory referencing.





The adventure follows classic 'Spider-Man' conventions. Spidey's framed for a crime, and, through a series of false leads and plot twists, gradually unmasks the mastermind behind the scheme

Neversoft has taken the engine from *Tony Hawk's Skateboarding* and has somehow delivered an accomplished 3D action adventure game in *Spider-Man*.

The adventure sees the arachnoid hero swinging through New York tracking down Doc Oc, who has framed him for a crime he didn't commit. Thanks to the Marvel comic licence a roster of heroes crop up – including Black Cat, Daredevil and Human Torch – as Spidey tussles with troublemakers like vicious symbiote Venom and master illusionist Mysterio. The licence also means Neversoft has been able to ramp up the level of detail.

Voiceovers are provided by the cast of the 'Spider-Man' animated series (as well as legendary co-creator Stan Lee) and rewards on completing the game include alternative costumes and special abilities which appeared in classic issues of the comic.

Initially, the game appears to fall firmly into the stealth category, with distinct overtones of *Metal Gear Solid*, surprising guards with Spidey string; sneaking up and grappling villains from behind. Given the responsive control system, this is spot-on – so it comes as something of a surprise that the sneaking is limited to the opening level. The rest of the game follows a coin-op formula: linear, with an emphasis on action chases through skyscrapers and web-based battling.

One of the characteristics of coin-ops is that you're more tightly focused on the precision of the character's movements, which is great in this case because Spidey is crisply animated, and the player pays little attention to the fogging issue so evident in *Tony Hawk's* – Spidey's New York looks like it's shrouded in a fug of smog. A smart move, but the upshot of this decision is that each section of the game delivers a short, sharp burst of action and consequently, as a whole adventure, *Spider-Man* comes in remarkably short, taking about six hours to complete.

Interestingly, this is the first time Spidey has appeared in full 3D, and you'd imagine the developer was waiting with bated breath for Marvel's verdict. Apparently, the comics giant was impressed with the results, which is high praise indeed – and some considerable comfort to hardcore Marvel fans concerned that *Spider-Man* would be another waste of a decent superhero licence.

Neversoft has already hinted that another Marvel superhero game is on its way – maybe it'll be even more accomplished.

Edge rating: Seven out of ten

Kiss Psycho Circus: The Nightmare Child

Format: **PC** Publisher: **Take 2** Developer: **Gathering of Developers** Price: **£30** Release: **Out now**

Tying in with the Kiss 'Psycho Circus' tour and album, and based upon the Todd McFarlane comic, *The Nightmare Child* is an FPS constructed around the LithTech engine. Its levels, built according to the comic's goth horror mythology, are ethereally coloured with magical purples and spiritual greens, and simple textures paper the level design like a crayon recreation of *Quake*. Weapons, too, are *Quake*-like in appearance, but *The Nightmare Child*'s primary influence goes back further than that.

The game sports the same shock and schlock value that *Doom* kick-started the genre with, throwing infinite amounts of spawning enemies at your character, with AI seemingly limited to a relentless search-and-destroy pattern. The gameplay is devoid of anything but the most basic strategy of firing and running away, the level design plain and without any real sense of depth. The icon bar interface and the lack of interaction with anything but barrels and levers are pure *Doom*.

A lot like Kiss themselves, *The Nightmare Child* is comically frightening and utterly over the top. Just as aptly, underneath all the irony, make-up and gothic ramblings, it isn't really worth the effort.

Edge rating: Three out of ten



When fired upon, these enemies can lose their limbs, and still keep going. A neat touch, but despite their lethal and numerous nature, cleaving them in two with a magical sword doesn't have any impact





Cut-scenes inject the monotonous gameplay with a rare cinematic feel. Above, one of the characters receives his first piece of magical armour

Carmageddon TDR 2000

Format: **PC** Publisher: **SCi** Developer: **Torus Games** Price: **£30** Release: **September 1**



TDR 2000's sharp turns and blind corners produce their fair share of zombie casualties. Power-ups, such as the turbo just collected above, only increase the chance of damage to both your car and the undead





Driving opponents to destruction or going flat out for zombie kills are both viable options in completing the racing levels

Pushing its unmistakable brand of apocalyptic racing mayhem, the third instalment in the *Carmageddon* series retains a mission-based structure spread over nine landscapes, from the initial Hollywood-themed area to smog-filled cities.

The missions alternate with circuit-based races against the clock. Checkpoints bring time bonuses, as do destroying an opponent's car or running down inhabitants. Still, the carnage that so hyped the first appearance of the franchise is curiously underplayed here, and the game benefits from it. Levels can still be completed by annihilating the population, but there's more enjoyment to be had in casual zombie destruction while racing and shunting your competitors.

The repetitive nature of *TDR 2000* means its longevity is questionable, albeit enhanced by the eightplayer Internet option and an excellent physics engine. Kinetics are perfectly balanced, so while huge spins and flips can be suffered, they can also be inflicted, and often avoided. Braking is achingly unresponsive, particularly on the default car. Indicative of the whole game, the high speeds forced on you are fun, but ultimately frustrating.

Edge rating: Five out of ten

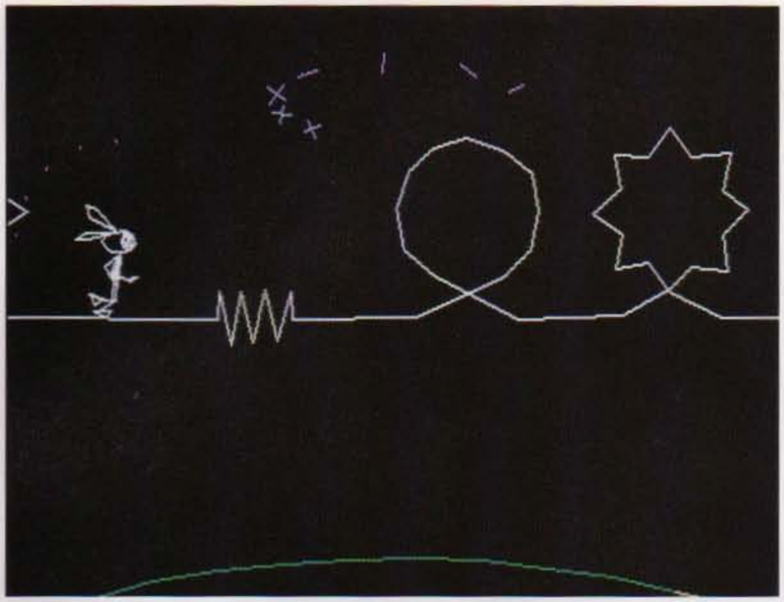
Vib Ribbon

Format: **PlayStation** Publisher: **SCEE** Developer: **SCEI** Price: **£15** Release: **Out now**





A rolling tutorial teaches you the *Vib Ribbon* basics. Above, Vibri is caught unawares by an approaching block. Master the moves and evolve (top)



The most difficult tunes feature combinations of shapes. Above, Vibri comes across some spikes, a loop, and, yes, a spiked loop, which requires the simultaneous pressing of two keys to pass successfully

The third game from Masaya Matsuura, the creator of *PaRappa the Rapper*, *Vib Ribbon* takes the BeMani concept into minimalism. Vibri, a wireframe rabbit, struts down a white line. He's obstructed by musically created waveforms that are cleared by pressing an appropriate button. That's it.

Gameplay follows the rhythmic reward model of *PaRappa*. Failure to clear obstructions causes the vectors to shake and break down, and your rabbit devolving into a frog, then a tadpole. Conversely, 18 consecutive successes lead to a move up the evolutionary scale, culminating in your genesis into a superbunny figure.

Negotiating the distorted Sanrio-esque pop that comes with *Vib Ribbon* is simple enough. The real challenge comes as the game's major selling point: insert your own CDs and try to traverse the unique sequences of peaks and loops created by each track.

True, it's not much more than an occasional diversion, and whether *Vib Ribbon* heralds a new age of vector-chic remains to be seen. But its innovation, combined with stylistic simplicity and near-infinite level expansion, deserves to be rewarded.

Edge rating: Six out of ten

Ray Crisis

Format: **PlayStation** Publisher: **JVC** Developer: **Taito** Price: **£35** Release: **Out now**

Ray Crisis is a no-nonsense vertically scrolling shoot 'em up: waves of angular metal ships scream down the screen; you dart from side to side, holding down fire. Bombs eliminate ground weaponry and dispose of attackers below before they can rise and fight. Much of the scenery is satisfyingly destructible: attack bridges and they'll fall away, their gun turrets with them. Simple.

While this game structure is potentially fun, each level is so short and your path to the boss so rigidly predetermined that the game ultimately feels hollow and pointless. The window of play swoops beautifully around the landscape, but because your movement is confined within it, any sense of inertia or freedom fails to materialise.

All the graphical splendour in the world wouldn't change the limitations of this painfully restrictive game design. *Ray Crisis* plays like a 16bit shooter in PlayStation polygons – a feeling compounded by D-pad control, continuous fire, hundreds of transparently robotic enemies. If that's what you want, then *Ray Crisis* won't disappoint. But neither will a secondhand Mega Drive.

Edge rating: Four out of ten





The end-of-level bosses are huge and occasionally spectacular. Despite this, the prevailing primitive feel of a 16bit shooter dominates the gameplay



Bigger fighters, especially those that travel along the scenery beneath you (above), are best disposed of by using your secondary weapons. Enemies advancing at your altitude must be gunned down mercilessly

Facing the future

The next generation of games will be up close and personal, according to 3D facial modelling startup Digimask



Digimask CEO Gary Bracey





Two photographs of a face front and in profile are requested to make a Digimask. The finished 12,000-polygon Digimask also has an embedded skeletal animation framework

If a picture is worth a thousand words and a face can launch a thousand ships, what's the value of a 3D model of your face that can be plugged into a game? A numerically tricky equation, and one that Digimask CEO **Gary Bracey** has pondered during the 18 months following his initial idea for the company.

"I had always thought it would be cool to actually be in a game yourself," he says. It took just six weeks after discussing the idea's viability with Keith Goss, now Digimask's technical director, for the first prototype to emerge.

The concept itself is simple. Take two photos, one face-on and one in profile, and email them to Digimask, together with some data about your physical appearance. From these photos, a three-dimensional, 12,000-polygon model of your head, including hair and a skeletal structure for animations such as laughing, crying and lip synching, is constructed. Also embedded are personal details such as name, nickname and physical size. All this information is stored on Digimask's secure server. When a user wants that information to be downloaded into a game or Web application that supports Digimask, they enter a PIN number. The server scales the information and exports it to the specific platform required, be it anything from PlayStation2 to a mobile phone. In keeping with the underlining Internet business model, the service is completely free to consumers. All they have to do is email the pictures and sign a legal disclaimer that the photos are their property. For Digimask, the most important thing is to make sure there's a big demand so the technology will be supported in as many ways as possible. "We want Digimask to be as ubiquitous as DualShock was – something developers include as standard," explains Bracey.

The number of applications is enormous, and not simply limited to games. One novel idea Nokia is considering is using Digimask with low-bandwidth, next-generation mobile phones. It would be possible, using Digimask's skeletal animation system and lip synching, to view the moving face of the person you were speaking to, without the bandwidths associated with true videophones. Internet chat zones are another potential hit. But while the most obvious application of Digimask is on ecommerce sites, it's games that are driving the technology.

"We have some pretty serious games in the pipeline," Bracey says, refusing to name names. Careful scrutiny of Digimask's Web site and promotional literature throws up a couple of leads, however, with Elixir Studio's *Republic* looking likely to be the launch title. Evolution Studio's PlayStation2 *Evo Rally* will follow close on its heels, with another PlayStation2 game also signed up. Bracey's ultimate application would be a football game. "I would love to see an online soccer game where we're playing against Manchester United, and I can see you and I pass the ball to you and I know it's you," he enthuses.

He even predicts that Digimask will be used directly as a game development tool. "If you are a developer, populating your game with 100 different people and you want realism, just send us the photographs of your programmers and artists, say, and we can turn them around quickly," he says, adding: "It saves on development time." The cost per head, for commercial use, will be a few hundred pounds.

"When we go live at the end of the year, there will be about 12 applications that will launch with Digimask," Bracey explains. The Web site has already clocked 2,500 pre-registrations and is preparing to enter its beta testing phase. Bracey is confident that the final version of the Digimask code, complete with its SDK, will hit its October deadline. "We're trying to personalise the virtual environment and we're hoping for millions of users," Bracey concludes. The vision is becoming reality.









URL
www.digimask.com

Not shooting yourself in the head

One obvious issue that springs to mind concerning Digimask is the *Perfect Dark* problem faced by Rare. The company withdrew the option to use the Game Boy's digital camera to input faces onto characters in the game's deathmatch for fear of misuse in the wake of the games encouraging violence debate in the US.

"We are very keen on security," Bracey emphasises. "We have a requirement where you need to have two specifically posed photographs – neutral expression, mouth closed, and staring straight at the camera. You would have to get someone to physically pose for the profile shot." In addition, when a Digimask is downloaded, you have to play as that character, which nullifies the potential of using pictures of a hated teacher for target practice in a firstperson shooter.

Whipping up a storm

The release of freeware3D package *Blender 2.0* is blurring the line between pro and enthusiast



Ton Roosendaal, creator of *Blender*



As well as handling animation, *Blender* is also a powerful 3D modelling tool

"I don't care if today's games publishers don't take a second look at what we are doing," says **Ton Roosendaal**, the outspoken creator of the 3D modelling and animation package *Blender*. "I get the feeling a lot is going to change in the next couple of years."

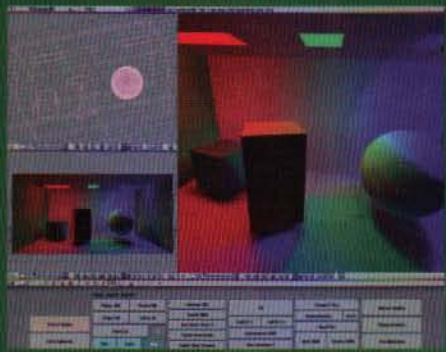
Change is something Roosendaal knows all about from personal experience. *Blender* started life as a proprietary development tool created for NeoGeo, the Dutch design company he co-founded. It took the closure of the company two years ago to open his eyes to a different way to do business. The result was *Blender*'s release onto the Internet as a 1.5Mb freeware program. Containing much of the functionality of packages such as *3D Studio Max* and *Maya*, wrapped up in a neat, cross-platform package, take-up was swift. The registered user base is now more than 105,000, and, because of this open-source approach, a large community continues to support it. Roosendaal reckons any query posted on *Blender*'s news server will be answered within three hours. The *Blender* codebase is also updated on a bi-monthly basis. "*Blender* is not about technology, it's about people," he emphasises.

The recent acceptance of the latest version of *Blender*, officially known as *Blender 2.0* (*gameBlender*), on to PlayStation2's middleware programme has underlined the quality of the package. The PS2-specific code can only be supplied to developers who have signed up for Sony's official PlayStation2 programme, though. Even so, Roosendaal seems to think it's unlikely that established teams will switch over to *gameBlender*.

"*Blender* has a huge potential over the Internet. Sharing games and improving them together is, for me, an exciting perspective," he says. "It might be that publishers and professionals are reluctant to go this way, but what happened to the dinosaurs, eh?"

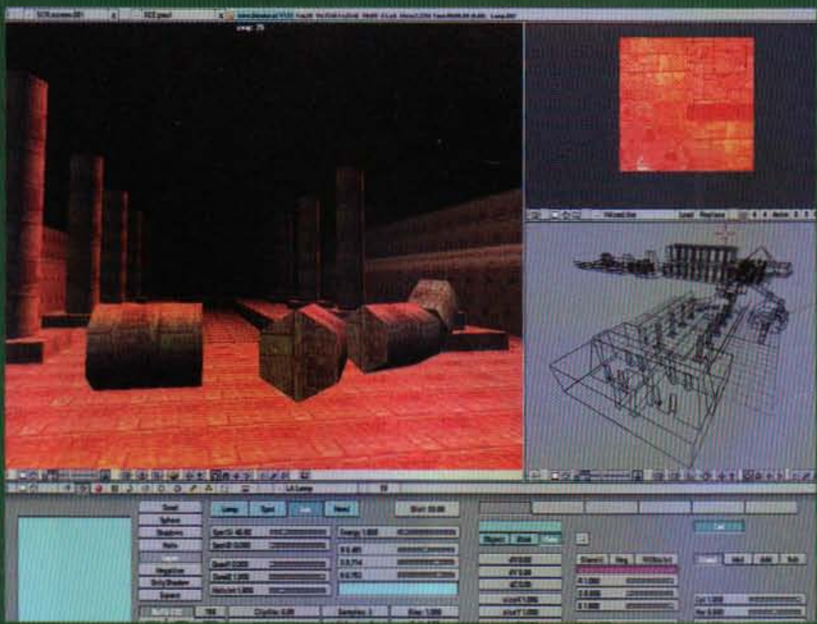
Instead, Not a Number, the company Roosendaal set up for *Blender*, is focusing on integrating *gameBlender* with its forthcoming *webBlender*. This will enable interactive content to be played in standard browser windows and encourage the distribution of game content online. NaN has commissioned single-level games to demonstrate the potential of the package. These can be downloaded from the *Blender* Web site, but, like all *gameBlender* games, they must be played through *Blender*. Always happy to help the evolutionary process along, NaN will also act as publisher for any complete games it considers worthy of release via its Web site at www.blender.nl.

URL
www.blender.nl





One of the demo *gameBlender* titles shows a battle between two hovertanks. Another shows how to move a laser-firing robot around a multi-lit environment



GameBlender is ideal for creating largescale environments such as this Egyptian scene (above)

Behind the code

GameBlender is an integrated program with a full object-oriented date structure. It supports the modelling of meshes, curves and nurbs, as well as deformation lattices and skeletons. Animations can be carried out with recourse to keyframes, inverse kinematics or motion curves. The rendering engine supports three layers and all OpenGL lighting modes. *GameBlender* also has its own AI scripting language, collision detection and dynamics code. Version 2.0 can now be downloaded from the *Blender* Web site, while the retail box of *gameBlender*, (*Blender* version 2.1) will be released in October, priced £30, and includes a full set of manuals and around 20 game demos.

Spanning the games divide

It's not as sexy as the games themselves, but the UNITY wireless platform is just as important



Digital Bridges' business developent manager, Chris Wright





Countless people have ideas about the online revolution and how the introduction of broadband will affect gaming, but small Scottish company Digital Bridges is building up its own wireless Internet games channel, and has already hosted more than 100,000 WAP games.

"For us, WAP is just the first thing," explains business development manager **Chris Wright**. "We're doing WAP because that's what the content is, but we are going to be delivering content to lots of different devices. They could be running browsers or Java or Symbian. The vision has always been the wireless Internet, not WAP."

The foundation for now and the future is Digital Bridges' UNITY platform, recently accepted onto Hewlett-Packard's Mobile E-services Bazaar. Designed as a fully scalable server, it's based on both Linux and HP-UX operating systems.

The platform has to work on a large range of handsets and over all networks. Key to this is its thin client technology, which ensures that multiplayer games can be supported. It also has multi-language support so gamers from different countries can play together, with the server sending instructions in the correct language.

UNITY's use of Enterprise JavaBeans also means developers within the UNITY programme can reuse and swap code. So far, four studios have signed up: Crawfish; Games Kitchen; German developer Handy Games; and Lionhead. "We're looking for ten developers, but they all have to be hand-picked because they must be good at certain things, and so enrich each other," says **Kevin Bradshaw**, Digital Bridges' CEO. "The UNITY platform will grow, taking in the components being built by developers, and they will be made available for the other partners."

This is particularly crucial for Digital Bridges site www.wireless games.com, as all the content must be integrated into the server to facilitate logins and lobby services.

As for the current backlash against WAP, Bradshaw seems unconcerned: "The biggest game Web sites have four to five million. We'll have at least that many WAP users by the end of the year – that's why we spent a lot of time looking at server scalability."

URL
www.wirelessgames.com/index.wml





Classic games currently make up much of the content running on UNITY

Physics on the rebound

The latest release of MathEngine's physics code is finally enabling developers to break new ground



MathEngine's games marketing manager, Paul Topping





Atlus' *Primal Image* was the first PS2 game to use MathEngine's middleware

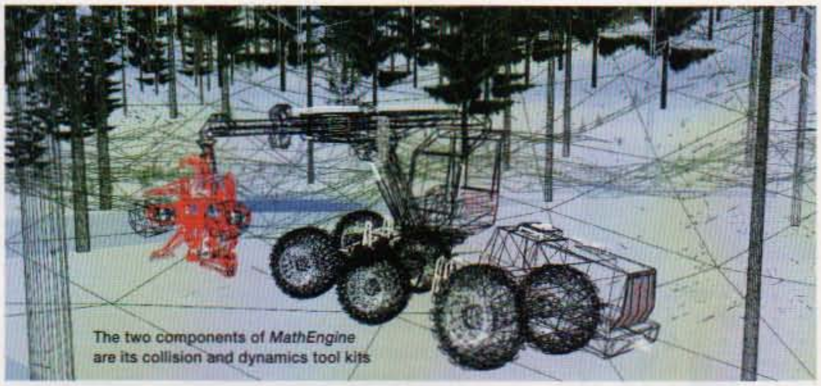
URL
Actor demo:
www.mathengine.com/files/ActorDemoV1.ese
Vivid Image:
www.vividimage.co.uk
MathEngine:
dev.mathengine.com

While there are plenty of good reasons to have realistic ingame physics, the process of implementing it is a lot harder than it first appears. That's the whole reasoning behind MathEngine's drive to position its dynamic and collision middleware as the easiest way for developers to get real physics into games. Unfortunately, developers, in turn, found the initial build of the physics tool kits too tricky and inflexible to implement.

"We got a lot of flak for the first version we released," agrees MathEngine's games marketing manager **Paul Topping**. "It was too hard to make stable, it wasn't quick enough, and it was too monolithic." One revision later, however, and the just-released beta of *MathEngine 2.0* has received a better reception. "We've had four developers signed up to use our alpha code and we've had relatively good feedback this time," Topping says.

The main improvements have occurred in the core solver, called Kea, which deals with all the heavy-duty mathematics underpinning the rest of the code. Written in assembly language, the basic numerical method has been completely changed to improve its stability. Kea has also been extensively optimised so it is smaller and runs considerably faster than before. It remains the only 'blackbox' within the dynamic tool kit, as the rest of the code is now supplied as open source, allowing developers to tweak it for specific applications.

"There's no way we can tell what type of games developers are going to do, and there's all sorts of level-of-detail issues in the physics, so we have to give away the source code," Topping explains. Another welcome change has been a more realistic pricing structure. The options are either a $50,000 upfront fee or $5,000 with 50 cent per unit royalty scheme.

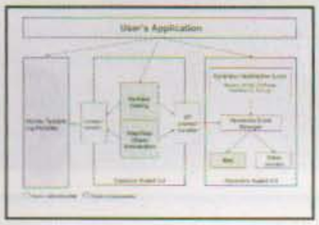


The two components of *MathEngine* are its collision and dynamics tool kits

The changes seem to be paying off. The first PlayStation2 game to ship using MathEngine's middleware was Altus' unusual model-photography sim *Primal Image*. Other developers who have signed up include Fergus McGovern's HotGen Studios, and Mevlut Dinc's Vivid Image, which has already released a 10Mb demo for its groundbreaking new *Actor*.

"People are trying to do some really innovative things with *MathEngine*," says Topping. "A lot of these games will come out with features you wouldn't have seen before, because it would have been too much of a pain in the neck to deal with all the physics." For MathEngine, it seems that what goes down, can also go up. And while that would have confused Newton, it should, at least, serve to make physics clearer for developers.





The latest version of *MathEngine* is faster and more stable than its predecessor – which wasn't tremendously well received – and allows developers more flexibility to tweak the code

Playing the part

The concept behind Vivid Image's upcoming game *Actor*, simply put, is totally reliant on MathEngine's code. Without giving too much way, *Actor* requires real-life, realtime physics for both its gameplay style and its impact. The traditional approach of scripting actions and reactions just wouldn't work, even if Vivid Image had the development resources of a Namco or Square – which it doesn't, of course. Yet, within three weeks of getting the MathEngine code, MD Mevlut Dinc had his first workable demo up and running. Refined since, the Actor technology demo is a large room filled with a variety of objects that can be interacted with and thrown around, while always obeying the laws of physics. You can even turn gravity on and off while playing a game of pool.





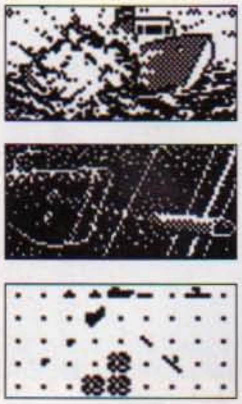
Dial-a-diversion

Mobile phone gaming has a big future, and Nokia is shaping up to be the market's Microsoft

Nokia's head of WAP applications, Graham Stafford



NOKIA



Finnish developer Wizzbang recently won a Nokia award for its *SubHunter* WAP game

URL
forum.nokia.com

When I started at Nokia 13 months ago, I was talking into thin air," recalls **Graham Stafford**. Many must have thought the move from Psygnosis development director to head of WAP applications for a mobile phone company a strange one. At the time developers didn't take phones seriously as a gaming platform; they were just dumb handsets with tiny monochrome screens. Even now, the first tentative steps of WAP gaming have met with some derision from some quarters of the industry.

What is becoming clear, however, is that mobile phones will be an important and potentially lucrative sector of the games market. No less a figure than Konami co-founder Kagemasa Kozuki recently predicted the mobile phone business could account for up to 50 per cent of the games market revenue in years to come.

"It's not a case of if, but when," Stafford emphasises when asked about the acceptance of WAP. But while this is inevitable, the speed of the 'when' relies on the quality of the content available for people to access. As an ambassador from the world's biggest handset vendor, it's Stafford's job to encourage the development of that quality across the board.

One of the most important issues for a WAP game developer to consider is: who should their games be targeting? Should it be hardcore early adopters who are prepared to endure bad interfaces, or the massmarket, who don't even understand the technology? For Stafford, at least, the issue is clear cut: "People ask, 'When do you think WAP games will be a success?', and I say 'When my mother plays them'. She wouldn't play console games. It's important to appeal to the general public rather than gamers.

"We need an active development community, and we need to support that." And with more than 10,000 developers of all shapes and sizes signed up to Nokia's Mobile Entertainment programme, which includes its game construction tool kit, the drive seems to be working.

The next stage of the Mobile Entertainment programme will come to fruition when Nokia releases its handset-neutral Java-based server platform to developers in two months' time. Nokia will also launch the server and its content commercially for mobile phone networks. Stafford is swift to point out that developers will still have to find a publisher for their games, though: "Nokia is a communications company, not a games company."

With second-generation WAP phones and the 'always-on' GPRS network expected before the end of the year, the future looks promising and varied for developers wanting to move into the sector.

The deal so far

Despite its reticence to get involved in largescale game publishing, Nokia has signed a number of content deals with developers and publishers. Oxford Softworks developed the first eight WAP games for Nokia, and is following these with another ten board-based games. Activision has signed up to create 11 text adventures, and h2g2 is working on a game based on 'The Hitchhiker's Guide to the Galaxy'. Nokia also possesses in-house development talent in Australia and Hungary.



One of Rage's three games for Orange, *Airlock* was developed using Nokia's game construction tool kit

Diary of a videogame

Stresses, strains and stupid drinking at the most important event in videogames

Elixir diary, part 22
by designer Joe McDonaugh



E3 is the most important date in the games industry calendar. Some 55,000 developers, publishers, retailers and journalists descend on LA to do the deals that will dictate the course of the year. For developers what happens here is the difference between success and failure. The buzz that surrounds your game is decisive in whether it will be a hit. To this end, Elixir spent March and April working flat out to be ready for the show. It was brutal, and reminded me of doing Finals: two years of your life rests on the fortunes of a single week.

Most of the team worked every weekend from the New Year and weekday evenings till the small hours. If the competition is working 15 hours a day, I want us to be working 16.



With more than 5,000 games at the show, there's no room for error or mediocrity. We had to have something that would establish *Republic: The Revolution* as one of the games of next year.

None of which could have been further from my mind as I found myself sprinting towards a Heathrow departure gate, cradling the demo PC in my arms, with the words 'Gate Closing' next to our scheduled flight number. Dave [Silver, Elixir Studios director] showed impressive pace for a man who'd been up coding for the previous two nights. None of which helped settle our now-jangling nerves as we stepped on to the plane, red-faced and pouring with sweat. Stress? It hadn't even begun.

E3 is about the relentless business of selling your game. You're just one of thousands of developers screaming 'Look at me!' You can't avoid this – it's part of the business of making games. The games are mostly shown on the stands themselves, which creates an atmosphere akin to a Motörhead concert, but with only half the charm. It's an assault on the senses, and not to be faced when hungover. It's very hard to command your own attention, let alone anyone else's – unless you're one of the scantily clad and much-pawed models. To counteract this I asked Eidos to let us have a private demonstration room at the back of their stand and they graciously gave us one. In total Demis [Hassabis, Elixir Studios founder] gave 45 half-hour demonstrations. Although gruelling, it was incredibly rewarding and instructive. If you're honest, you admit that working so close to something makes it hard for you to step back and see what you've actually got. Seeing your game excite hard-bitten journalists is inspiring.

As with most European developers, the hardest part of the show was persuading US journalists to sit up and notice your game. I think it's fair to say that the American market is very introspective (*Deer Hunter*, anyone?) and difficult to reach. Of the four million units [the UK-coded] *Theme Park* shifted, only ten per cent sold to the US.

The biggest disappointment for me was that I had only an hour to look around the show. I'm always desperate to see what's out there, to see what I can look forward to playing in the near future. Of the games that I saw, you couldn't help but be amazed by the demo of *Metal Gear Solid 2*. Huge crowds of people gathered around to see it. Above all else it was a chilling demonstration of Japanese power. Like everyone who saw it, I can't wait to get my hands on it. *Commandos 2* also looked cracking.

While in LA we stayed in a beautiful hotel in the Westwood area with a crowd from Eidos. Demis invariably spent his evenings with important people, such as other CEOs. Luckily, I had no such restrictions and ended up spending my time with a lot of different people. I was amused to notice that for all LA's many attractions, put Brits in an exotic city anywhere in the world and they'll make a pilgrimage to the local Brit-themed pub, which they duly did.

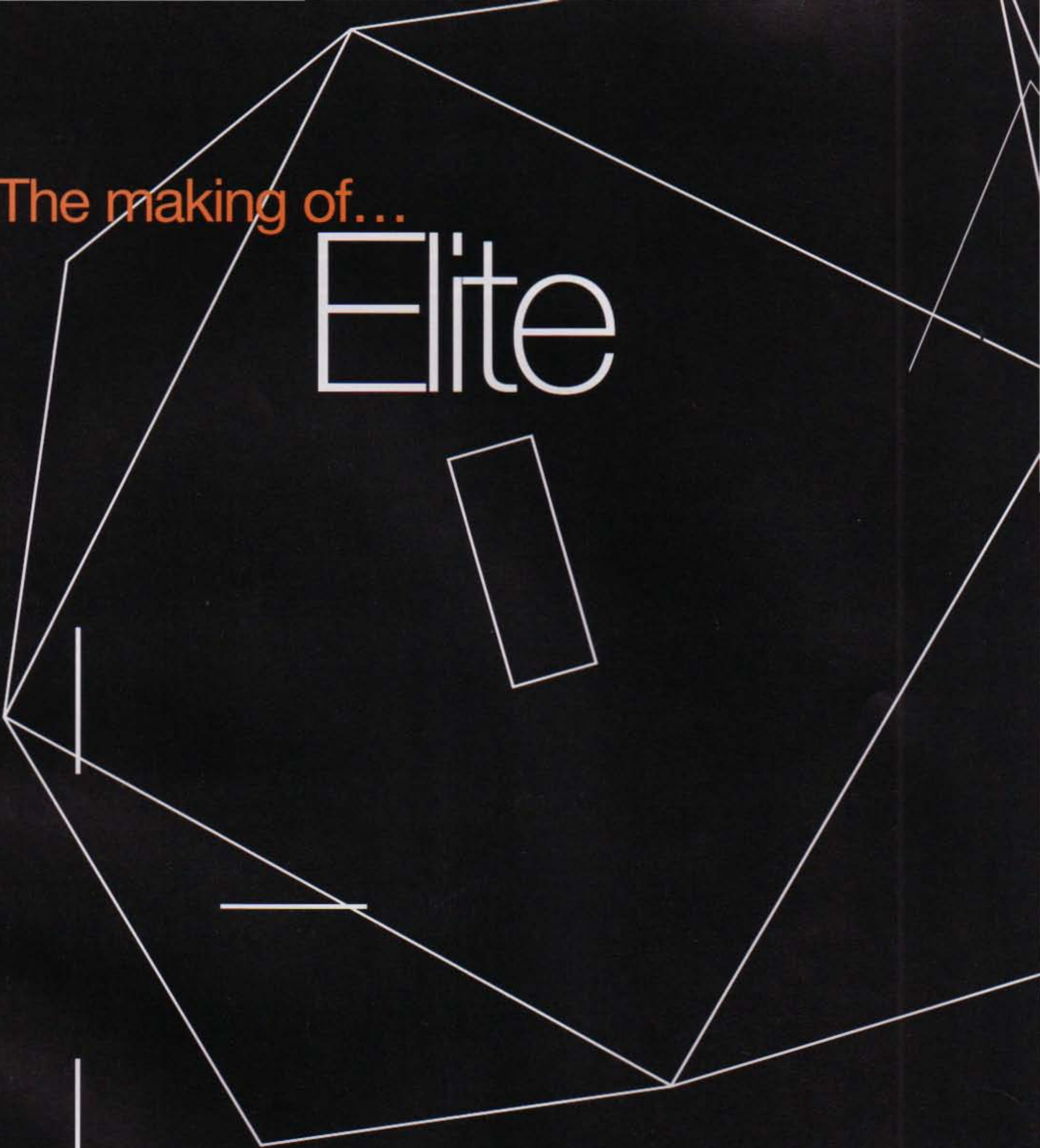
We bumped into a lot of old faces while there. Some of the guys from Mucky Foot, for instance, were staying in the same hotel as us. Gary Carr was lead artist on *Theme Hospital*, and he and Demis reminisced about old Bullfrog days. When Demis first got to Bullfrog as a fresh-faced 15-year-old they used to share the same room, and Gary used to wind him up mercilessly. He's a great bloke: irreverent and cheeky, and a lot of fun to spend time with. Their new game, *Startopia*, looks great, and they had a good show.

My favourite experience of the show involved being invited to dinner with the UK managing director of a large publisher and ended up drinking tequila slammers at 2am. I tried to sneak off and catch a cab, when I felt a hand on my shoulder. "Where the fuck do you think you're going?" shouted the MD. "Get back in here and drink more tequila!"

When we returned home we found out that *PC Format*, the UK's biggest PC leisure magazine, had made *Republic: The Revolution* its game of the show. The team was thrilled, and the overall press response was incredibly positive. As ever, this won't concern us, as we know there's a huge amount of work to be done and a lot of die still to be rolled.

'For developers, what happens at E3 is the difference between success and failure. The buzz that surrounds your game is decisive in whether it''ll be a hit'

The Codeshop diary now focuses on two projects from two developers. Elixir's next instalment will appear in E90



The making of…
Elite

Elite revolutionised gaming with its 3D graphics, expansive game world and balanced blend of space trading and combat, transforming the lives of young programmers Ian Bell and David Braben in the process. **Edge** traces the story of its development, and how it was nearly never published



When someone unfamiliar comes knocking on your door at ten o' clock in the evening dripping with rain and weary after travelling the 300 miles from Liverpool to Cambridgeshire, you know you are in the presence of an obsessive. Questions including: 'In which galaxy can the Generation ships be found?' and 'Just how many stars make up the whole game universe?' only serve to re-establish the weird world of fandom which **David Braben** and **Ian Bell**, co-creators of *Elite*, must occasionally warp into.

Elite spawned the first ever Internet user group, and eventually docked on to 17 separate formats. The game established Braben and Bell as coding heroes to the next generation of programmers. It also brought them early fame, extensive news coverage and an amount of money no number of narcotic runs between Wolf II and Lesi could have garnered. The *Elite* story began in typically humble surroundings: a tiny dormitory at Jesus College, Cambridge, Earth.

"*Elite* was substantially written during the summer holidays when I was at university," reflects Braben. "I was 19 and Ian 20. I wanted to do a 3D space game since time began and I had a little Acorn Atom PC that was largely built at home – I'd already programmed this 3D expanding star field which included a few spaceships." Though Braben and Bell have since fallen out over the rights to the *Elite* brand, he is candid about their initial relationship and early friendship: "Ian was doing Maths and I Physics. When I saw his BBC Micro it was like, wow. We got really excited about programming and at that point he was already coding a game called *Freefall*."

Bell's recollection of the genesis of *Elite* is somewhat different; "David claims to have been planning a 3D space game on the Atom at the time," he tells **Edge**. "Peter Irvin, who had written *Starship Command*, and later *Exile* for the BBC Micro, was talking about a space trading game. It was the obvious thing to attempt." After lengthy discussions and some experimental coding, a 3D space combat game began to emerge. It would be called *The Elite*. Revolutionary vector maths, huge areas of space to explore and frenzied action, however, did not satisfy the two Cambridge undergraduates. "It felt very empty," continues Braben. "When you played it for a bit it felt pointless. To make it a satisfying experience we had to have some motivation. That's where the trading game came from." Ironically, both Braben and Bell agonised over this aspect for a long time. "We were both afraid that it would actually be a boring component. But in a sense it gave you the contrast – the relief in between the tense combat."

The game was rebranded as *Elite* and the real grit and grind of producing the expansive and unique game universe really began. "I suppose it was the real bedroom coding scenario," recalls Braben. "We each worked separately on different sections and then amended sections by fixing or tuning." Working in tandem speeded up the process yet the dangers of replicating key code had to be studiously prevented. "We were just very disciplined about keeping records of what we changed," he continues.

The game naturally pushed the BBC Micro to its limits and the headache of compressing all the data down to 22K proved a constant struggle. Yet Bell recalls that first magical moment when he knew he had something special: "It was the first time when I tested the movement and rotation routines together with the tactics code and actually saw some Vipers moving in 3D – that was special." Though Braben always considered *Elite* more of a hobby than a business venture, the toll of long nights at the keyboard did begin to eclipse his Cambridge studying. "I delivered the master disks one week before my exams," he ruefully tells **Edge**.

Elite's success is now well established. Bell estimates that some 600,000 copies were eventually sold. The game was released in 1984, cost £15 – expensive for the time – and went into a production run of an unprecedented 50,000 copies (only *Revs* had previously managed to sell 30,000 units). The national press soon picked up on the phenomenon and both authors employed an agent. Yet early code had been turned down by some of the big players of the early '80s. "I first submitted *Elite* to Thorn EMI in London, and in a letter which I still have they said they didn't want to publish it," explains Braben. "To be honest it was one of those moments when





Dogfighting (left) was tremendous – get too close and enemies could launch unavoidable missiles. BBC Micro version only: the elusive Generation ship (right) was only seen under certain conditions









Perhaps the most innovative feature of *Elite* was the opportunity to trade across eight vast galaxies. It added a depth and durability still unsurpassed in today's market. Steady food and mineral trading would soon turn to narcotics and firearms when greed took over

I thought, my God, they might be right.'

This maverick space trading game broke every conceivable convention. *Pac-Man* and *Defender* clones ruled the videogame industry. Who would want to play a game which had no recognisable goal and committed the blasphemy of having no points total? "The reasons they cited were all true," concedes Braben. "But ironically they would turn out to be the strengths of the game." Among the criticisms levelled at *Elite* were that it was too long, required save positions, used vector graphics, and wasn't colourful enough.

Undeterred, Braben and Bell returned to their task of studying by day and programming by night. A few other publishers were tentatively approached before *Elite* finally generated the gasps and exclamations so common among gamers when they first piloted the Cobra MkII. "We went to Acornsoft and fired up the game on their BBC Micros. We instantly had a crowd. It was two-deep within minutes because of the open-plan arrangement. I knew then there was no question as to whether they were going to publish it," remembers Braben. Acorn, however, was not completely happy with every single design feature. Incredibly, *Elite* was an even more extensive game back in '83. The eight galaxies which became standard on all versions originally numbered two to the power of 48 – literally hundreds of thousands of billions. "Ridiculous numbers of galaxies," reflects Braben. Speaking about the decision to drastically curtail the *Elite* universe, Braben remains philosophical. "I like the idea that you're in a Douglas Adams-type universe – an insignificant dot on an insignificant dot feeling – but you don't want too much of that sort of thing."

The inclusion of gun running and narcotics was also a potential sticking point with publishers – Thorn EMI had emphatically said so in its earlier rejection letter to Braben. Acorn eventually came round to the idea after much persuasion, but the potential controversy of buying and selling narcotics for a profit would hang over the team until the first sales figures were returned. The inclusion of such elements are tame by today's standards, and *Elite* can at least be defended on the grounds that a moral choice must be made. "The idea was that you could get a much better benefit from carrying narcotics," replies Braben, "but, of course, you've got the downside of police intervention."

Acornsoft must also be credited with a great deal of the praise for the early impact of the game. A competition was devised based on the concept of becoming the best – the Elite. The competition was run at the end of each month after release, for six months. Results were published in the most popular games magazines. The play-off between the six winners went on to the grand final at the Acorn User Show. Not only was it the first home videogame-related competition of its time, but more importantly it became an early anti-piracy measure. Looking back, Braben marvels at the way the competition prevented lost revenues to the pirates. "It was very interesting actually, chatting to people who had entered. I asked them, 'Did you buy the game?'. 'Erm, no,' they said, 'but when I realised I was in with a chance I thought, right, I can do better than that'. They went out and bought the game just to get the entry card."

Channel 4 News quickly picked up on the phenomenon. An experimental starfield with vector graphics had suddenly become national news and was being played by just about every teacher and child who had access to a BBC Micro. One story suggests that the then ITN News editor went down to the news room and found nearly every journalist playing *Elite* on their terminals. Braben replays the scene: "'What the hell's going on?' asks the editor. 'Don't worry, we're just playing a game'. 'No, why is everybody playing the same game? This is a news item in its own right!'"

The report was broadcast at peak time, and Braben acknowledges the boost it gave the game: "Both Ian and I were looking embarrassing in our student attire, but we got some brilliant quotes from it. Peter Warlock, who was then the editor of *PCN* magazine, said, 'It's the best game since… it's the best game ever!' That was really nice. He didn't imagine it being bettered in the sense of the impact it had."

When asked about the fortune made on the back of one of the most influential videogames ever, Braben remains predictably guarded. "It went from hardly having two pennies to rub together to talking about potentially very big money," he says. "Although people don't realise it's actually a long time before the money actually followed on." In a brave and perspicacious move both Braben and Bell kept a firm hold on the *Elite* brand. The move would prove to be a foresighted business decision. "We gave Acorn the rights to just the BBC Micro platform," recalls Braben. "They didn't realise we were serious about it, because I withheld not just the game rights but the film rights too. I think that they had not realised quite how valuable the other platform rights would be."

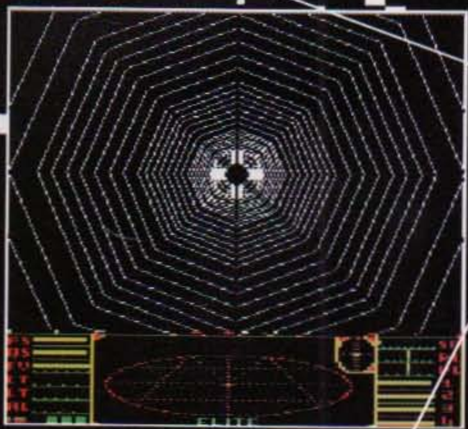
"*Elite* was substantially written during the summer holidays when I was at university. I was 19 and Ian 20. I really wanted to do a space trading game. It was the obvious thing to attempt"

Though the popularity of *Elite* seems not to have come as a huge shock to the two authors, the sudden media attention and change in lifestyle did take some adjusting to. "You see these programmes on TV about lottery wins and how people can't handle the changes in lifestyles," ventures Braben. "There's truth in that. *Elite* was like a lottery win because although we had worked hard, it was still a hobby. It was never a money-driven thing. It eventually caused a rift."

The rather unconventional fame which came after *Elite* still remains with the two coders. Bell dedicates a Web site to the game, and is more than happy to indulge anyone still interested in queries about the space dredgers or how to avoid witch space. Braben, too, is sometimes uncomfortable with the attention over a 16-year-old videogame: "I was at a party a fortnight ago when someone asked for my autograph and it's a bizarre feeling. Then two other people wanted it. As far as parties go its an honour but it does begin to separate you off from the other people there."

It is unlikely that fanatics turning up on either programmers' doorsteps to discuss the finer points of this space trade game will

ever really go away. The game was played by too many people for too many hours and at such a formative time for it to fade away into obscurity. One frightening thought is that *Elite* probably affected a huge proportion of the population at some stage and in some way. As Braben acknowledges: "So many people approach me and say, 'I failed my exams because of you'. But more say, 'I got into the industry because of you'."



Even warping could be a tense affair, with the chance of meeting Thargoids in witch space – if you were out of fuel it would be curtains for your commander

FAQ

Toby Gard

Co-founder and lead artist, Confounding Factor

Perhaps the most recognisable face of what some have termed the new wave of game development personalities, **Toby Gard** is still hard at work on PC action adventure *Galleon*.

What was the first videogame you played?
Pong. I was about eight, I think.

What was the first computer you owned?
A Nascom.

What was the first thing you ever created on a computer?
A text adventure based on Robin Hood.

What was your first job in the industry, and what was the first thing you ever designed?
An artist at Core Design. The first thing was some kind of pants boulder sprite for *BC Racers*, I would imagine.

What's your favourite game ever?
Ultima Underworld. It was such an incredible leap forward in so many different ways, it would still be an astounding game now. Well, with a bit of a graphics overhaul.

What was the last game you played?
Vampire: The Masquerade. I think it deserves a lot more than four out of ten.

How many hours a week do you actually spend playing games?
It really depends on what I'm playing. I suppose somewhere between one and six hours a week.

What's the first game you look for when you walk into an arcade?
The *Darkstalkers* beat 'em up thingy.

Which game would you most like to have worked on?
The one I'm making right now, but to be honest with you I'd rather just play it and miss out the work bit all together.

What, specifically, are you working on at the moment with *Galleon*?
I'm making animations to allow characters to move seamlessly into position when they want to use objects. And I'm mucking around with the new features in our particle system.

What stage is the project at?
We're getting towards being able to move fully around the levels, but they still don't work.

Which particular element of *Galleon* are you convinced will most impress gamers?
The main character's movement.

"Development times are far too long. At this rate I'll only get another four or five games done before I'll have to retire"

What new development in videogames would you most like to see?
Brain input for game creation so that you just have to visualise stuff in your head and it appears on the screen.

What annoys you about the industry?
The development times are far too long. At this rate I'll only get another four or five games done before I'm old enough to retire.

What is the most expensive item that you have bought with a bonus?
A new company.

What do you most enjoy about working in the videogame industry?
That the work is never boring.

Whose work do you most admire?
It has to be Miyamoto. His games are simply always fun.



What's the best thing about being known as the creator of Lara Croft?
That it stops me people referring to me as the artist who worked on *BC Racers*.

What are you expecting the *Tomb Raider* movie to be like?
Interesting.

How would you have treated it?
I would have avoided any kind of romantic interest.

What sort of Lara do you think Angelina Jolie will make?
She could be good. It's certainly a better choice than Anna Nicole Smith, who I heard was going to play the part for a while.

Which new platform are you most looking forward to?
X-Box, because it's not difficult to develop for.

Put the following in the order you believe they will stack up in terms of popularity in two years' time: PS2, DC, X-Box, Dolphin.
It's hard not knowing anything about the 'StarCube', so I'll leave that one out: X-Box, PlayStation2, Dreamcast.

What's your take on mobile-phone gaming?
I reckon it will be absolutely massive when the hardware starts getting decent.

Finally, synthesis or persistence?
I'll just stick to confusion, I think.

RESET

Where yesterday's gaming goes to have a lie down

reload

Examining gaming history from **Edge**'s perspective, five years ago this month



Issue 25, October 1995

In the days before **Edge**'s annual 'Playing The Game' supplements, dedicated to readers looking to land a job in the videogame industry, this issue must have come as something of a surprise, its cover adorned not with some flash render from a new game or tech demo, but a still from the Central Office of Information's careers TV ad (hands up who still remembers it). Inside, the likes of Shiny's Dave Perry, Amazing Studio's Christian Robert, and, er, Virgin IE's **Julian Rignall** offered nuggets of wisdom to the mag's readership. "And finally," offered the former Newsfield and EMAP hack, "don't get put off by failure." Clearly this was a man of his word.

Elsewhere it was pretty much business as usual, with news of proposed Saturn 2 technology from US defence specialists Lockheed Martin (didn't happen), Sega's partnering with NVidia to provide top-hole PC versions of its hits (let's not go there), and word on Nintendo's recently launched Virtual Boy: 'It shouldn't be forgotten that, with the Game Boy, the company successfully created a new market for itself… You can never tell what Nintendo has up its sleeve'. A certain diminutive, balding magician's catchphrase springs to mind.

DID THEY REALLY SAY THAT?

EA Canada's **Bruce McMillan**, senior VP of development (and the man behind *FIFA*): "My biggest concern about the industry is that we're surrounding gameplay elements with a lot of fluff. And that scares me." Do you think he's still there?

DID EDGE REALLY SAY THAT?

'If you've never heard of Scavenger, the chances are that you will do soon.' Oh yes, **Edge** readers certainly did hear a lot more about the company that promised the Earth with its technology, sputtered like knackered engines when it came to delivering gameplay, and ended up filing a $100m lawsuit against GT Interactive when the publisher finally lost faith.

TESTSCREENS (AND RATINGS)

Wipeout (PS; 8/10), *J-League Willing Eleven* (PS; 7/10), *Command & Conquer* (PC; 8/10), *Philosoma* (PS; 5/10), *Zhadnost* (3DO; 3/10), *Space Hulk* (3DO; 8/10).



1



2

1. *Amok* was one of the Scavenger games **Edge** was convinced was going to shake up the world back in '95… 2. … as was *Into The Shadows*. Ultimately it was a case of 'nice face, shame about…', etc 3. Was Lockheed Martin about to deliver Saturn 2? No
4. Probably the funniest thing ever to appear in **Edge**
5. EA's Bruce McMillan
6. Namco's *Rave Racer*



3



4



5



6

pixelperfect

The industry's favourites from yesteryear. This month, Lost Toys' **Jeremy Longley** talks footy





Football as pinball in Anco's finest hour. Worth investigating car boot sales for

Over the years, I've played many games that I've really enjoyed, but only a few have had me coming back month after month, and the first game that did that was *Kick Off 2*. For me this is the most perfect sports game ever written, because rather than trying to mimic a real-world sport on a computer, they created essentially a new sport whose playing field was (in my case) an ST.

The ball control really had nothing to do with real football, and that was the thing that made it great – rather than make the players look like they were dribbling the ball while you just pressed the joystick, in *KO2* ball control looked nothing like dribbling, but it was a hard skill that you needed to master, just like the real thing.

Here was a title where you could train for weeks on a particular aspect of the gameplay, and feel that you were a better player after it. Months into the game, we were still learning new techniques and new tricks and being proud to pull them off successfully. I can clearly remember play being interrupted several times by the morning sun streaming through the window and reflecting off my monitor.

Kick Off 2 really rewarded you for working hard at it, and it was many years before I found something else that pulled this off (when QuakeWorld arrived). I actually bought a £40 ST at a car boot sale six months ago just to play it again.

inbox

Communicate by post:
Letters, **Edge**, 30 Monmouth Street, Bath BA1 2BW
Or email:
edge@futurenet.co.uk

After reading your comments about Sega in your E3 article, I felt I had to write. You said its show line-ups are 'consistently innovative, daring and extremely playable – so why aren't gamers listening?' The reason is simple. The gaming press is to blame. They've spent all their time focusing on Sony's PS2, constantly hyping it while being totally oblivious to the fact that Sega has been busy doing what it does best – producing great games. The DC line-up is looking very strong, with titles that are fun, freaky, cool and innovative, while all Sony is offering is sequels to the sequel to the sequel before that. If the gaming press had looked a little closer at the DC and realised that Sega had learnt from its past mistakes, the DC's sales would have doubled. If Sega goes down it will be a great loss to gaming and the industry. This time Sega is not to blame, it's down to the apathy shown by the press.
Simon Tasker, via email
Sadly, there's only so much shouting **Edge** can do.

It seems to me that PlayStation2 is in some danger of becoming the next Sega Saturn – the kind of statements that are being made at the moment by prominent developers are eerily reminiscent of the criticisms of architecture and feature set that buried thirdparty support for the Sega machine, and I wonder if software for the machine will be so forthcoming once initial commitments are out of the way. X-Box, on the other hand, is looking very much the modern PlayStation. Could history be about to repeat itself?
Joshua Evans, via email
But Sega did not have the brand strength going in to the 32bit era as Sony has approaching 128bit. Having 70 million machines out there pushing with your logo is one hell of a marketing tool.

I felt a little rankled at the snide editorial comment at the bottom of the first page of your June edition. For those of you who missed it, it smelt like 'if Hideo Kojima can get off his butt and make dev tools, why don't you western developers stop your whining, get on your bikes and do something?' Well, excuse us. I think I can speak for most of the western development community when I say that it's a bit rich for journalists to be giving purposeless and patronising advice like that. Surely that's the producer's job.

Just to set the record straight here: Mr Kojima works for Konami, a vast company, where, if they wanted to, they could throw 30 to 100 programmers at a task building all the tools and libraries they could need, and feel little pain for their gain. Most of us in the industry would be lucky to find ourselves working in teams of between five and 20 people with perhaps an R&D/tech support team of up to five. To add to this, one wonders just how much co-operation Sony has really been extending to us Gaijin, specially since the Powers That Be recently admitted that alleged 'features' like 'full-screen, no-processor-time antialiasing' are, in fact, programming possibilities you have to come up with, on your own, from the bare metal upwards. Naturally, this is pretty much Business As Usual for my colleagues and myself working right now with the old PlayStation. Of course, from all the hype Sony and its friends have generated about the PS2, you'd have thought features like this were going to be hardware based, much as they worked on Dreamcast or the N64.

All of this of course takes time. N64 and Dreamcast already came with tools and libs so you didn't end up with the trouble the PS2 developers have encountered. And, yes, the only solution is more time and money. I mean, wake up, people. Some of you shmoes might remember how cruddy (and yet promising) early 3D stuff was on the old PSX. Compare *Metal Gear Solid* with (God help us) Battle *Arena Toshinden*. It's amazing what a difference a few years makes.
Arash Mohebbi, via email
Though it's risking sounding even more like a producer, this must be asked: do id workers grumble about lack of staff? Is id looking to bolster its head count so that it might assemble a team comparable in size to those of Japanese codeshops? No. The small, Texas-based team simply gets on with what it does best: creating first-rate videogames. There's probably a lesson in there somewhere.

When the Sega Saturn was released, few developers supported it. In some part this was due to the awkward architecture of the machine. I don't remember **Edge** complaining about whingers then, so it seems a little two-faced to be berating developers for complaining about PlayStation2.

Konami may well have the resources to develop their own middleware, but surely smaller software houses don't. Sony spent a lot of time wooing developers to the original PlayStation, ensuring the machine was utilised to the full and that coding for it was easy, but their attitude now seems arrogant and complacent. Still, **Edge** has piqued my curiosity. What are the differences between PS2 and the other machines? What problems are developers having? What does the promised 'middleware' do? Is this a Microsoft-esque attempt to dominate the games market by making PS2 code difficult (and therefore not cost effective) to port? Could it be designed to show up weak spots in other hardware? Sony knows how to support



E86's intro, encouraging developers to investigate their own solutions to PS2 problems, was both 'purposeless and patronising', says Arash Mohebbi

developers, so its action (or lack of it) is deliberate.
Sab Bond, via email
You're saying Sony *wants* PS2 to fail in the eyes of developers? It would hardly be preaching the middleware message were that the case.

Jake's letter (E86) missed the fundamental point behind 'the synthesis model'. This type of methodology is essential if three-dimensional videogames are to massively increase the complexity of game environments. It all comes down to memory limitations (points raised in Jez San's speech at Develop '99 (**E**75) and in Total Recall (**E**36). Graphics processing power and CPU power now massively outstrip the performance of memory, while there will never be sufficient memory available to accurately model complex environments without imposing limits on the playing area and the players interaction therein. The added benefit of using processing power to procedurally generate the game world is that the environments themselves can become far more dynamic and less repetitive, which will not only provide greater graphical 'reality', but could also provide far-reaching gameplay potential.

There are some game developers out there that have realised the limitations of the traditional methodologies (witness *Republic*'s infinite polygon engine or the RTDAT technology utilised in *Messiah*). I find it somewhat heartening that Sony have anticipated the inherent potential in these techniques and have designed the PS2 from the ground up to support them. It is because of this that I believe the PS2 has the most promising potential of any of the next-generation game boxes. X-Box's geometry prowess is relatively specific and locked into the rendering pipeline, so that even if the X-chip lives up to its specs (it is yet to exist in silicon form) it will not be as well suited to pushing dynamic geometry, a limitation of the NVidia chips.

The PS2 is a challenging development platform, but given that developers will need to adopt PS2-like strategies if they intend to push the envelope of 3D performance, this isn't necessarily a bad thing. The PS2 architecture is no bodge job (unlike the Saturn), rather the first attempt by a consumer manufacturer to encapsulate the ideas espoused in Diefendorff and Duby's concept of a 'dynamic media machine'.

Finally, an NVidia-class GPU coupled with a decent CPU and a hatful of RAM does not outclass Sony's superconsole, something that's well illustrated in the numerous benchmarks of GeForce2 cards available on the World Wide Web, and probably why Microsoft pushed back the release of X-Box until late 2001.
Gary Moran, Birmingham
Perhaps gamers don't want a 'dynamic media machine'. Come January, it will be clear.

I rarely play computer games, but my husband does and I have seen some of the more violent titles. While I understand that, like other types of entertainment, censorship of games is a complicated and controversial subject, I think it would be naïve in the extreme to deny a possible link between games and behaviour.

Society is rapidly adjusting to the idea that there is a direct link between images of abnormally thin women and the incidence of anorexia amongst young girls. Our consumerist society is driven by advertising – another way in which the images we see affect the way we behave. If you accept the above notions, surely it is not too simplistic to suppose that the repeated playing of games which reward destructive or aggressive behaviour has the potential to seep into the subconscious mind of the player, and thus affect their own behaviour?

I am not suggesting that all who play these games are going to become axe-wielding murderers – I have read women's magazines regularly and haven't starved myself once, but I am very aware that they change my perception of the way I look. If you are young, with a developing identity and little in the way of role models, I feel that these images will have a much stronger impact. Along with Stephen Dinkeldein, I think it is a matter of great concern, and one that should not be dismissed in the name of huge profit. However, I suspect it will.
Amanda McPherson, via email
And we suspect you're right. But thanks for sharing your views.

Idiot! I can't believe I've been so stupid. Yes, that's right, I'm one of those simple-minded fools who, despite decades of gaming experience, backed the loser in the last round of console wars.

Two years ago I spent £150 on an NTSC Nintendo 64 when everybody else was backing Sony PlayStation. As you can imagine, the last 24 months have been barren indeed.

The only really top-quality games my machine has been able to offer me in this time are *Mario 64*, *Blast Corps*, *GoldenEye*, *Diddy Kong Racing*, *Banjo Kazooie*, *F-Zero 64*, *Turok 1 & 2*, *PilotWings 64*, *Mario Kart 64*, *1080° Snowboarding*, *WaveRace 64*, *Zelda*, *Jet Force Gemini*, *DK 64* and *ISS 64*.

What's more, my machine is now obsolete. All the future offers is *Perfect Dark*, *Excitebike 64*, *Majora's Mask*, *Banjo Tooie*, *Conker's Bad Fur Day*,

> 'It's a bit rich for journalists to be giving developers purposeless and patronising advice. Surely that's the producer's job'



Perfect Dark. Just one reason why Joseph Poole remains content with Nintendo-branded gaming hardware

Mario Tennis 64, *Mickey's Speedway Racing*, *Turok 3*, *Dinosaur Planet* and *Earthbound 64*.

When all this is put together it amounts to little more than a few thousand hours of entertainment of a quality unmatched by any other system ever. If only I had known that owning a console was about having the highest-selling machine with the vastest range of shoddy, second-rate titles rather than about playing good games, I would never have made the mistake in the first place. Please help me to choose the winning alternative this time around.
Joseph Poole, via email
Just a second... got it. This is irony, right?

While everyone will agree that female representation in computer games seems at the moment to be a little, er... top heavy, non-virtual representation seems to be a little on the slim side. When will **Edge** run a feature on the key female figures in the industry today, on those who have played a vital role in the past, and on those who may affect gaming development in the future? And please – no lazy features on a certain Ms Croft and her real-life representatives.
Shane Dillon, via email
Damn. There goes the Nell McAndrew poster-supplement idea out of the window. A serious look into the issue is currently under discussion.

Is there any truth in the rumour that Sony will ship only enough PS2s to cover the pre-orders that shops will soon start taking? Having been fortunate to buy computers, consoles and games since the BBC Micro B, I find the idea that Sony will not meet demand for what must be the biggest development in their history not only ludicrous but suicidal.

This must be another ruse by the games shops to force customers into placing orders, thus guaranteeing business on October 26 and also forcing those who would normally wait till the initial price comes down to part with their cash. I have decided that the PS2 will be my next-gen console, but I am in no rush to join the queue – besides, nothing of any real quality has come out to stop me from playing *ISS Pro Evolution*.
Dino Karapittis, via email

With recent advances in the connection speeds through Internet ISPs occasioned from ADSL, it may now actually become acceptable (and perhaps moral?) for developers to churn out endless sequels and arcade conversions. Arcade games, with their three-minute-per-play ethos, are ideal vehicles through which the games industry can enter the market for downloadable 'loan' software. For so long consumers have berated the lack of imagination involved in arcade conversions, multiplayer aspects and other seemingly random alternative game modes (what was *Tekken 3*'s volleyball about?) doing little to attract all but the most ardent arcade fans to the genre.

ADSL and broadband will permit the rapid transferral of large amounts of data to the consumer every time he/she wishes to play in a similar manner to which American companies intend to supply word processing software and virus checkers, inter alia. The companies providing arcade conversions could utilise such technology to deliver arcade conversions to the consumer for a small fee each time, coupled possibly with a larger fee for the permanent download (ie, purchase) of the software. The small fee would mimic the arcade prices, which many consumers have proved they are willing to pay, and would appease those gamers who complain that such conversions often lack the durability and thus value for money of titles such as the *Final Fantasy* series. Microsoft's X-Box, Sega's Dreamcast and Sony's PlayStation2 would all be ideal target platforms if compatible technology was available, Sony perhaps taking the ingenious step of supplying cheap, ageing games for its backwards-compatible PS2 through the Internet. It might also alleviate the stresses of the 20-something user group who have recently revealed the desire for shorter games.
'Uncle Den', via email

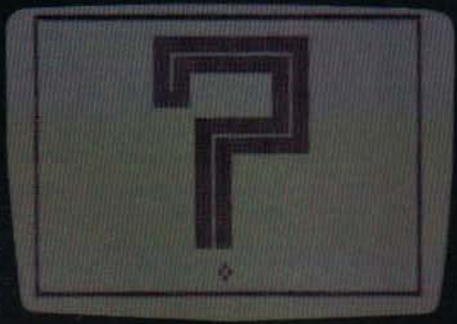
The article 'Ever decreasing circles?' in **E**87 tried to plot the future of the DC. In my opinion the DC will ultimately be a failure because Sega has made the same mistake as Nintendo: it has produced a machine with a second-generation storage medium. The decision to release the N64 with cartridges left its sales lagging far behind other consoles. If Sega had released the DC using DVD technology it would have saved a lot of money in development costs (instead of designing their own CD format). It could have then been sold as a games machine/DVD player.

In Japan the initial PS2 software quality was poor and hence sold relatively poorly. However, at the same time sales of DVDs rose dramatically. If the DC had been released with a DVD drive and the quality of games already released it would have been a success. The future does not bode well for Sega. Unlike Nintendo they do not have the Pokémon franchise and Game Boy to keep them afloat while they rectify the error. I believe they will eventually have turn to software development and coin-op manufacture.
Paul Huxley, via email

> 'When will **Edge** run a feature on the key female figures in the industry, those who have played a vital role in the past and those who may affect it in the future?'



'Uncle Den' questions the value of 'seemingly random' bonus modes such as *Tekken 3*'s volleyball subgame to anyone other than the hardcore gamer



Next month: mobile phone gaming.
The future of electronic entertainment?
Or the biggest white elephant of all time?
Edge takes a look behind the hype.





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Lotus Team Challenge (PS2)

International Superstar Soccer (PS2)

No One Lives Forever (PC)

Mr Driller 2 (coin-op)

Red (PS2)

REVIEWED

Jet Set Radio (DC)

Virtua Tennis (DC)

TOCA World Touring Cars (PS)

Tokyo Highway Battle 2 (DC)

Deus Ex (PC)

Diablo II (PC)